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An index to the eighty-first volume of THE RAILWAY GAZETTE *covering the issues from July 7 to December 29, 1944, has been prepared, and is now available free of charge on application to the Publisher*

DIESEL RAILWAY TRACTION SUPPLEMENT

The January issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1s.

CALENDARS FOR 1945

A limited number of RAILWAY GAZETTE *Office Calendars for* 1945 *is now ready and may be had on application, price* 1d. *each*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Home Railway Uncertainties

WITH rather less than a month to go before the first of the home railway dividend announcements in respect of 1944 is made, the yields which are obtainable on the marginal stocks of the main-line railway companies do not suggest that the Stock Exchange is unduly optimistic. In fact, of course, little variation in last year's rates is expected, and investors are more interested to know how long present dividend payments are likely to be continued. The best guess so far is that the control agreement may remain in being for two years after the war, but on longer term prospects nothing is known. The uncertainty which surrounds the future of the railways is reflected in the fact that a yield of 7½ per cent. is obtainable on G.W.R. ordinary and Southern deferred, not far short of a 7¾ per cent. on L.M.S.R. ordinary, and as much as £8 8s. per cent. on L.N.E.R. 4 per cent. second preference. Commenting on these yields, it is pointed out in *The Financial News* that earnings would have to fall about 30 per cent. to uncover G.W.R. ordinary, by 20 per cent. to have the same effect on L.N.E.R. second preference and L.M.S.R. ordinary, and by 10 per cent. in the case of Southern deferred. Obviously, therefore, the margin of cover at the present time does not account for the prices of the stocks. What unsettles the market is the variety of opinions as to the future of the railways when the present arrangements come to an end.

Government Bulk Buying

An impression is gaining ground that Government bulk buying of raw materials is to be a permanent feature of British trade after the war. It is known that Government purchases are likely to be made for some little time after the war, but the undesirability of the adoption by this country of a permanent policy of this sort is fully appreciated by many of the trades and industries which would be concerned. It is sometimes argued, in support of a practice of this kind, that the Government is able to secure benefits which are not available under free and open trading. It is not quite clear, however, to whom these benefits are to accrue, as often enough a scheme of this kind is supposed to satisfy a producer demand for higher prices and the consumer need for lower prices. In wartime, of course, strategic considerations predominate and world markets are disrupted; governments therefore, have been able to usurp trading functions and to operate largely without direct reference to economic calculations. The same would not be true under normal peacetime conditions, and the fact that the Government was the predominant buyer and therefore the predominant seller, might introduce political elements into trading which would be undesirable.

Taxation and Enterprise

The re-distribution of our national income has been in progress so insiduously that it is seldom realised even by those most subject to it. Now the supply of rich taxpayers has run dry, and the overwhelming percentage of our post-war budgets must come from the pockets of the middle and artisan classes. In a recent article in *The Evening News*, Captain L. D. Gammans points out that if every income of over £1,000 a year were confiscated and distributed, each one in this country would benefit to the extent of about 3s. 9d. a week. On high incomes, direct taxation can now amount to 19s. 6d. in the £ and even exceed 20s. in the £ if the majority of it comes from property. For every £ that the Chancellor of the Exchequer receives, 3s. 6d. comes from those with an income of £10 a week or less. After the war our national expenditure may be about £2,000,000,000 a year, and Captain Gammans thinks that probably it will be possible to bear this enormous weight, provided that we succeed in restoring a sufficient volume of export trade to provide for essential imports and if our industry and agriculture are efficient, but there comes a stage when, without adequate reward, initiative is stifled and output falls away. The task will be to find the happy medium in which the Exchequer can get the money required and encourage those qualities of thrift, initiative and enterprise on which the prosperity of the country depends.

Mutual Aviation Insurance

Managers of five leading mutual insurance associations of shipowners have issued a circular announcing preparations for the formation of a mutual insurance association for covering third-party risks for aircraft owners. It will be the equivalent for air carriage of the protecting and indemnity clubs which have served shipowners well for nearly a hundred years, and, while its primary purpose will be the indemnification of its members against those liabilities which are within the general scope of what is known as third-party insurance, it will also establish a

means by which the members can enjoy that service which has made the club market an essential and integral part of the marine insurance market as a whole. In the same way as the clubs have proved their value in the settlement of claims for collision liability, shipowners' lability, and other matters within their scope, so, it may be expected, will the new Aircraft P. & I. Association prove of great value in dealing with similar claims arising out of carriage by air. Just as the clubs have worked side by side with underwriters in the open market in marine insurance, so it should be possible for the new aviation club to work side by side with the new and growing aviation market at Lloyd's and with the companies. While it may be expected that initial support will come from shipping lines operating aircraft services, the new organisation will be open to any responsible aircraft operators who desire to enter it.

Technical Education of Electrical Engineers

The Institution of Electrical Engineers has issued a report of its Post-War Planning Committee on part-time further education for those entering the electrical industry. This suggests that provision should be made for the education of three groups of technical personnel; craftsmen, technicians and professional engineers. A few craftsmen's courses exist already, but these will have to be expanded when, under the new Education Act, part-time day release becomes compulsory for employees up to the age of 18. It suggests that there should be a three-year course for a craftsman certificate, and then a more general course, of two years, in workshop administration. For technicians, which includes technical assistants, testers, designer draughtsmen and erection engineers, it is proposed that the existing course for the ordinary national certificate in electrical and mechanical engineering should be co-ordinated as a basis and afterwards, where necessary, there should be a course in advanced technology of the kind developed by the City & Guilds of London Institute. Students who do well in the first two years of the ordinary national certificate course should be combined with those who have reached a good school certificate standard in mathematics and physics, and should enter a two-year course leading to an intermediate national certificate designed to meet the requirements of the Section "A" examinations of the Institutions of Civil, Mechanical and Electrical Engineers.

The Hispanic Council

The first annual meeting of the Hispanic Council, the chief aim of which is to promote closer relationship between the British Empire and the Spanish-speaking nations, was held recently. The Council owes its inception to the belief of some industrialist closely associated with Latin America that Great Britain should show more interest in the Spanish-speaking republics, and should become better acquainted with their language, literature, and history, as well as with their vast possibilities for economic expansion. Lord Davidson, who presided at the meeting, pointed out that the Spanish language was spoken by 110,000,000 people, and that over four-fifths of them inhabited eighteen countries of Latin-America. The importance of that vast market would have to be well to the fore if Great Britain was to increase its export trade, as is essential in the post-war period. The Council would endeavour to keep prominently before the Government and the public the importance to Great Britain of her trade relations with the Spanish and Latin-American markets, and would co-operate with all bodies, official and unofficial, concerned with those territories. So far, the work of the Council has been financed by a small group of sponsor firms, but an invitation has been extended to every firm with an interest in trade with Spain and Latin-America to become members.

Ten Years of Staff Suggestions

Since 1925 the Southern Railway has maintained an organisation for seeking and examining staff suggestions for improvements in the working of the railway. Nearly 10,000 suggestions have been received, and hundreds have been adopted and the originators rewarded. The outbreak of war necessarily restricted the operation of this scheme, but, even so, more than 1,500 suggestions have been investigated since 1939. One has helped to reduce the risk of mishaps to passengers travelling in the blackout. A guard and a station foreman jointly suggested a stencil notice on compartment door blinds "Look for the platform before you alight," and this notice is used throughout the Southern Railway system. A relief signalman put forward the proposal that station steps and risers should be painted diagonally. This not only saved paint, but was found to make the steps more easily seen. A good idea was received from a locomotive fitter. Because of lighting restrictions, the use of braziers to thaw certain external pipes on engines was not permitted. This man devised a method whereby the difficulty was overcome by directing steam from the engine on to the frozen fittings. We understand that many other suggestions were of a technical kind, and showed considerable originality, keenness, and perception.

Metro-Vick Activities in 1944

The features of last year's working at Metropolitan-Vickers Electrical Co. Ltd. continued to be somewhat abnormal because of the world situation, and attention had to be devoted to essential products and investigations. Much of the work undertaken cannot be disclosed in present circumstances but that which may be made public includes certain items of railway interest. During the year, eight of the ten electric locomotives, which the company was building for the South African Railways, were completed, and the remaining two are expected to be shipped before the end of the current year. An order has been received from the same railways for twenty-eight locomotives of large capacity, and we are informed that the designs for these are well in hand. They will be of 2,500 h.p. and will weigh about 105 tons; the wheel arrangement is 0-6+6-0. Arrangement is being made for the multiple-unit operation of two or more of these units, and an electric boiler will be incorporated to provide steam for coach heating. The mechanical parts are being built by Robert Stephenson & Hawthorns Limited. Inquiries received by Metropolitan-Vickers Electrical Co. Ltd., give evidence of post-war activity in railway electrification requirements.

A Wartime Transcontinental Traffic Reversal

A remarkable problem confronting the railways of the United States is that the final defeat of Germany, when it comes, will result in a complete reversal of the flow of heavy war traffic in the former country. Cessation of war shipments to Europe will be followed immediately by the concentration of the armed might of the United States against Japan, and the diversion of shipments from Atlantic to Pacific ports in consequence, as mentioned on p. 582 of our December 8 issue. The carrying capacity of the main lines through the mountainous western states to the Pacific Coast—Northern Pacific, Great Northern, Western Pacific, Union Pacific, and Santa Fe, with their associated lines—is likely to be strained to the utmost, but as the facilities at the Pacific ports roughly equal the maximum traffic capacity of these lines, there is a limit beyond which the railway munition traffic will not be able to expand. If further shipping capacity is needed, it will then have to be by way of Atlantic coast and Gulf of Florida ports and the Panama Canal. Shipments already *en route* to Atlantic ports at the time of Germany's capitulation will be disposed of in every way possible to avoid port congestion, but some cross-hauling of munitions and equipment will be almost inevitable. What gives the greatest concern at the present time is the manpower shortage on the Western lines, particularly in the Pacific port areas. However, the entire problem is being thought out in advance, so that the sudden diversion of the eastbound to the westbound traffic flow, when the time comes, may be accomplished with the least possible strain on the railways.

Post-War Rail versus Air Travel

An interesting comparison of the future of rail and air transport in the United States has been made recently by Mr. H. Rush, a member of the Air Transport Association's Economic Research & Planning Committee. Until now, he points out, the air-lines have not "taken a very deep bite" out of the railway passenger business, and the passengers attracted have been mainly from the Pullman group, and not the "coach" or third class category. First class rail fare, with Pullman day or night accommodation added, costs about 3½ cents a mile, whereas aeroplane travel averages 5 cents a mile on the shorter journeys. On a coast-to-coast journey from New York to Los Angeles the aeroplane fare is $153·49, and the rail fare $111·33, but Pullman lower berth supplements bring the latter up to $140·01, and when all supplementary charges are added, including meals, there is very little difference in cost between the two modes of travel. Obviously the greater the distance, so much the greater the advantage of the aeroplane, especially in the saving of time; from New York to Los Angeles the aeroplane time is 20 hr., as compared with a best time of 59¾ hr. by rail. In the view of Mr. Rush, the limitation of rail speed lies not in the motive power, but in the track, and a "staggering" amount of track modernisation would be needed, including the complete reconstruction of thousands of miles of main lines, to prepare them for maximum speeds of 200 m.p.h., and overall speeds of 150 m.p.h. As, on the basis of 1941 figures, no more than 14

per cent. of U.S.A. railway revenue was derived from passengers, there would be little justification for such expenditure, and in that event the proposed lowering of railway fares to such low rates as 1 cent a mile for coach travel, and 2 cents for Pullman, would be the most effective weapon for the railways to use.

Why Not Morse and Semaphore?

Whenever we hear of the need of some better means of communication between railwaymen on duty, drivers, guards, shunters and so on, we wonder why use never has been made of the Morse system of signalling by flashlamp and whistle, or the semaphore system of using the arms, with, if necessary, some conspicuous object held in the hand. A simple louvre-shutter attachment to be clipped on the front of a hand-lamp would enable Morse signals to be exchanged quite easily. In most cases it would not be necessary to spell messages out in full. A certain number of conventional signals could be drawn up to cover the most likely requirements. Something like this would enable walks on the permanent way to be eliminated on many occasions when darkness renders it objectionable. By day the need would not be so great perhaps, but even then a small white flag could be used to make Morse signals very easily. We have seen many situations in traffic operation where considerable delay could have been avoided if communication between two men could have been simply and effectively established. The present war has led to Morse becoming familiar to a much wider circle than formerly, and there seems no reason why it should not be known by all traffic staff. By day the semaphore message system with advantage could be used on occasion, such as during engineering operations, to convey instructions quickly.

A Good Set of American Rules in 1873

It is interesting to study the contents of the rule books of years ago and see how the growth of rail transport and the better facilities which improvements gradually enabled it to provide influence the wording of the regulations issued to the staffs. As experience revealed weaknesses and omissions, so the rules were modified, and indeed the process is not complete yet and we may presume that it never will be. It is interesting to note also how far advanced some railways were in this respect at an earlier date than might be expected. We were reminded of this by reading the illustrated history of the Pennsylvania Railroad, issued to the public in 1875. This well-produced volume contained not only a good history of the undertaking, with excellent notes and illustrations relative to the cities and towns it served, but some informative technical detail on the equipment and method of working the railway. An appendix contains the rules of the Transportation Department adopted in 1873 and drawn up largely by the then General Manager, A. J. Cassatt. These rules, all admirably worded, are evidently the product of great care and thought, and it is interesting to see how many of them differ but little from those met with today in American railway operating practice. To print them in such a volume was a wise step, and no doubt did much to promote public confidence in the Pennsylvania management.

Locomotive Maintenance Records

It is hardly surprising that the advantages derived from the systematic maintenance and replacement programmes now adopted by many American railways with their diesel-electric power, which contribute so largely to the high availability records of these locomotives, should suggest that the steam locomotive might benefit by similar attention. It is becoming the practice, for example, for the American diesel to carry a log-book which contains a detailed record of all the maintenance and repair work which has been carried out on the locomotive since its installation in service. In the matter of maintenance, the long-distance diesel, whether passenger or freight, usually has everything in its favour by being rostered to make the same round trips, week in and week out, so that it always receives its maintenance and repairs at the same shops. In the intensive conditions of modern steam locomotive working, however, a steam locomotive often moves from shed to shed, and frequently shed foremen may have to carry out repairs on a locomotive of whose previous history they know nothing. Some of the troubles to which a locomotive is subject may be of a recurrent description, and for lack of any readily available maintenance record, superficial remedies may be applied, whereas the root case of the malady is not detected and put right. Doubtless the high capital cost of the diesel has prompted the close attention paid to its maintenance, but some part of the diesel maintenance plan might be applied with advantage to steam power.

Railway Charging Powers

IN the many discussions which have taken place inside and outside the House of Commons on the railway control agreement, one of the most important points which has failed to attract the attention it deserves is the duration of the present system of railway charges. On this point the financial agreement is very vague. It lays down that "before control comes to an end . . . time will be given for the operation of any statutory machinery governing the level of charges," but no definition is given anywhere as to how long "before" or what constitutes "any." It is well known that if expenditure after the war is not to exceed receipts, there will have to be a substantial increase in charges over the present general level when the volume of traffic, at present inflated by wartime circumstances, returns to normal.

In a recent article in the City columns of *The Times* it is suggested that the provision relating to the restoration (or possibly the introduction) of statutory charging machinery before the end of control must mean that whatever time is required for the revision of the general level of charges in fact will be given. In seeking to arrive at a closer interpretation of the words "before" and "any" in the agreement, the article in *The Times* points out that in respect of the former the Parliamentary debate on the control agreement, which took place on the adjournment of the House of Commons before Christmas, seems to open a provisional line of approach. Mr. Noel-Baker then indicated that the period of control might be two years after the war. On the assumption that the war meant the war with Germany, control might thus be continued until the summer of 1947, or might even continue beyond then. It is suggested that it seems warrantable to assume that the end of the war in Europe should be meant, and that the wartime system of charges should be terminated soon afterwards, because of the complications that otherwise would ensue in the relations between different forms of transport.

During the last war there was no increase in railway charges, and it was January, 1920, before rates were put up to a standard which, in the opinion of the Rates Advisory Committee, were to enable the companies to carry on their business on a commercial basis. Until then, the State had taken the risk of loss from the maintenance of rates at their pre-war standard. The effect had been a transference to the railways of an enormous traffic previously carried by sea. Although the risk of a transfer to sea-borne traffic would be less at the present time, road hauliers would be placed in a difficult position. Physical shortages of rubber may well tend to do this in any event, but anything of the sort is likely to force re-consideration of the inter-relations of transport, whether or not the time is considered ripe. On this assumption, it is suggested that a start would need to be made towards restoring machinery some time before 1947.

Whatever the machinery may be, some time will be required to allow the machine to function. In all, it was seven months after the railways announced their intention to propose the increase when the 1937 revision of charges came into force, and in present circumstances a further period would be required to restore the statutory machinery itself. Moreover, at the present time the issues to be considered would have been very much more complex than in 1937. It is therefore contended that twelve months would be a short enough time to resolve all these matters, and that at least the first move towards restoring, or introducing, statutory charging machinery in readiness for peacetime working may have to be made during the present year.

Dealing with the second point in doubt, the article recalls that the present statutory machinery is enshrined in sections 35 and 59 of the Railways Act, which provide for the review of railway charges by the Railway Rates Tribunal, and their general modification where necessary, to enable the railways to earn their standard revenues. The existing position is covered by Defence Regulation 69 (3) which provides that, so long as the Minister is in control of any railway undertaking, no annual review shall be held under section 59, and no general revision or variation of the charges or fares should be carried out under section 35, but apart from this provision, the Railway Rates Tribunal has continued its normal work during the war in such matters as the classification of merchandise, and so forth. Once control ends, the suspended machinery automatically will be restored unless Parliament decides to replace it by something else. The "any" in article 33 of the financial agreement leaves Parliament free to do this.

In any event, three aspects of the problem of railway charges

will require decision; the adjustment of charges to meet the change in money values caused by the war, the question of standard revenues, and the relaxation of the regulations governing charges (the so-called "Square Deal") promised by the Government in 1939. It is, therefore, contended that, all in all, it is difficult to resist the conclusion that 1945 should see the first steps towards implementing Article 33 and towards restoring or introducing statutory machinery for peacetime operation. If the Government does not take the initiative, the railways will have to do so in view of the obvious importance of the matter to them. As so big an issue cannot but raise the whole question of the future of transport in this country, it seems likely that a major decision by the Government cannot be delayed much longer.

Transport in Eire during 1944

POLITICAL and physical conditions combined to make the year 1944 probably the most momentous in the history of transport in that part of Ireland which comes under the Government of Eire. The Transport Bill shares with the Arterial Drainage Bill the honour of constituting the two major measures which the Government determined to put through. The Transport Bill was introduced originally on March 30, 1944, and it seemed unlikely that there would be serious parliamentary opposition, but an apparently innocuous motion led to an appeal to the electors. For some time previous to the disclosure of the Government intentions, there had been unusual buying of Great Southern Railway shares, which had been standing at a very low figure, and allegations were made that certain persons had special information due to leakages from official sources. When the Bill came up in the Dáil for second reading, Dr. T. F. O'Higgins, who was Leader of the Opposition at the time, moved that the second reading be not granted until the Report of a Tribunal of Inquiry set up to investigate the alleged leakages was available. This motion was carried ultimately by a majority of one vote. It was nevertheless a defeat for the Government, and Mr. de Valera chose to regard it so seriously that he at once advised the President to declare a general election, even though it was obvious that, if he had sought a vote of confidence from the Dáil, it would have been given. From the viewpoint of party strategy, Mr. de Valera's decision proved successful, for the Government was returned with a substantial majority over all parties, and the Fianna Fail Party was restored to the position of supremacy which it had held after the general election of 1938. Mr. de Valera, with a total of 78 supporters in the Dáil, faces the coming five-year period with a party stronger than any Government in Eire has ever had.

The Transport Bill had to be re-introduced in the new Dáil and it was eventually carried through both Houses before the rising for the Christmas recess; the Bill was re-introduced on June 12, and finally passed into law on November 29—the latter date has proved extraordinarily elusive, as it does not appear to have been recorded at the time in the daily press. The only vital change in the Bill as re-introduced was that, instead of coming into operation on July 1, 1944, it had to be postponed until January 1, 1945. As we have previously recorded, the Act marks a new era in the history of Irish transport, as it has established a new company called the Irish Transport Company (Córas Iompair Eireann), which has absorbed all the undertakings of the Great Southern Railways Company and the Dublin United Transport Co. Ltd., and thus virtually controls public rail and road transport over most of Eire. The Government appoints the Chairman of the new company, who is to act in full accordance with the wishes of the Government and a board of directors. The Chairman has wide powers, inasmuch as no business can be transacted without him, and in certain cases his personal decision is final. It is not surprising therefore that the Irish press described as a transport "dictator" Mr. A. P. Reynolds, when he was appointed to be the first Chairman, for a period of five years from January 1, by the Minister for Industry & Commerce. There will be a part-time board of directors appointed by the holders of common stock; the first directors to take office consist of those persons who were directors in the dissolved G.S.R. and D.U.T. Incidentally, while holding office, the Chairman is disqualified from being nominated or elected to Dáil or Senate.

The capital of the new company is £20,000,000, of which £16,000,000 is in 3 per cent. debenture stock, with Government guarantees, and the balance is common stock. The stockholders of the absorbed companies receive equivalent holdings in the new company. Stock Exchange dealings in G.S.R. and D.U.T. stocks took place for the last time on December 29. G.S.R. debentures were steady at par; guaranteed dropped to 82⅜; preference eased 1¼ points to 68½; and the ordinary held up well at 70. The beginning of dealings in C.I.E. issues, when the markets reopened on January 2, attracted a good deal of interest. The common stock opened at 67, but dropped in the late dealings to 66. This stock, of course, will not be entitled to any dividend that may be declared by the G.S.R. The C.I.E. debenture stock changed hands at 98⅞.

On the physical side, transport in the 26 counties of Eire was affected in 1944 more by shortages of coal and rain than by the shortage of petrol. The coal and rain shortages led to a serious fall in the supply of electricity, so that the few remaining Dublin tramway services, at the beginning of April, had to stop running after 9.30 p.m. When the scarcity became worse, in June, they ceased running altogether. The routes were then maintained by buses, but the trams were restored, at their old times, on October 2. The shortage of coal caused the passenger train services to be reduced to a twice-a-week journey in each direction towards the end of April. This restriction was accompanied by the closing of eleven branch lines, the limitation of goods trains to four days a week, and the suspension of refreshment cars. After four months, train services were increased again to one a day on the Cork line, and one a day on four days a week on other main lines. On the Great Northern line there was no really serious curtailment of services, but the very large numbers of passengers who travelled to Dublin and Southern holiday resorts during the late spring, summer, and early autumn imposed a great strain upon the trains available. Seats had to be reserved days in advance, and there were long queues for trains at Amiens Street, Dublin, and Great Victoria Street, Belfast. The ban upon the use of motorcars and taxicabs for travel to sports meetings was applied more severely, and the use of trains for the conveyance of both persons and horses to race meetings was forbidden. Probably for the first time since train services became a normal part of the transport system, race meetings at the Curragh had to be run without any trains to bring patrons of the Turf, and this restriction continued throughout the year. It is worthy of record that Mr. Sean Lemass, the Minister for Industry & Commerce, told the Dáil during the past year that it was unwise to ignore the possibility of the disappearance of the railways, and the arrival of a time when the whole of the transport services would be undertaken by road.

Accessibility and the Locomotive Designer

IT was during the last quarter of the nineteenth century that the definite cult of an æsthetic style in locomotive design, at any rate as to the external lines, reached its climax. The essential items having been catered for, the drawing office staff finally moulded the outward details into the characteristic forms of their particular company, so that it was impossible to be in any doubt as to whether the engine was a product of Swindon, Stratford, Derby, or Doncaster. With this fashion, there often went a great desire to arrange for as many pipes, rods, etc., as possible to be tucked away out of sight; the culmination of this practice was to be seen in the last great 2-2-2s of Patrick Stirling's design.

The highest praise has been lavished on Patrick Stirling for his beautiful engines, and no one would deny that it was well deserved; but there is no doubt that in his efforts to clean up the exterior of a locomotive, he provided his men with some particularly awkward jobs in the maintenance and repair of these machines. One of Ivatt's first acts on succeeding Stirling was to remove the leading springs from their abominable hiding places *under* the running plate to an accessible position alongside the base of the smokebox. Anyone who has ever tried to substitute a new for a broken spring in such a position (perhaps in a running shed, with only limited time for the job) will appreciate just what is involved in such cases. The superb "8-footers," too, could give fitters a grim time with some of their front-end features; the facing of the steam ports is still remembered by men who had experienced what it involved in their earlier years—especially if the job had to be done without removing the bogie, which, with its curious built-up framework, took up all the available space below.

So it was at the end of last century; we have been slow to learn the obvious lesson, for even in the last twenty years engines have been built in scores, and even hundreds, to designs which, though good enough in general proportions, have included details which are little short of criminal, when one considers the

thousands of needless man-hours wasted annually in maintenance work which could have been materially simplified by exercising a little thought. We know of a series of large classes of six-coupled engines of comparatively recent date in which the leading coupling rod bushes (a noted item for wear) cannot be repaired without an almost incredible amount of dismantling. Other similar drawing office atrocities include smokebox horrors, for example, steam-pipe-to-cylinder castings (" extensions "), or snifting valves held down by studs, half of which are inaccessible and which would have been avoided in favour of bolts and nuts by a good designer. The list could be extended almost indefinitely.

A few days ago we were in conversation with a well-known draughtsman in the drawing office of one of our great railways; the talk had turned to steam pipes and methods of preventing leakage at the joints in these days of high pressures. We were shown the relevant portion of the latest design, as now exemplified in a famous class of engines; although it looked very sound as a design, we asked if the steam-pipe extension castings were not very difficult to fasten down securely. The answer was a cheerful and carefree affirmative, followed by the remark, " Why, what does it matter? *We* don't have to do the job! "

Perhaps this frivolous outlook was only assumed, in the instance mentioned; but there are plenty of hard facts—in the form of extreme awkwardness and inaccessibility—to show that in the past that attitude, unfortunately, has been taken only too often by the design staff. No one here wants to see the characteristically clean and handsome exteriors of our locomotives marred by an incrustation of gadgets, like barnacles on a breakwater. That effect can well be left to continue in those Central European countries where it has flourished so luxuriantly in the past. There is no need to turn a locomotive inside out, on the grounds that its details will then be more accessible. But there is such a vast gulf between that style and the style we have associated above with Patrick Stirling, that there is plenty of room for a reasonable middle course. It would perhaps be invidious to mention recent locomotive types in this connection so we will content ourselves with the observation that in their day (which is not by any means done) the late Mr. Robinson's 2-8-0 locomotives on the former Great Central Railway have proved good examples of an excellent general layout, in which everything came really to hand in their maintenance in the running shed.

The Plaint of the First Class Traveller

RECENT correspondence in *The Times* on the real grievance of the first class ticket holder who finds himself deprived of a seat by the holder of a third class ticket led to our publication of this correspondence, with editorial comment thereon, in our issue of November 17. One of the main difficulties has been the acceptance, in some cases, by ticket inspectors, of the excess fare tendered by holders of third class tickets, and even the offer of the first class fare by a passenger who has joined the train without holding any ticket. It would be difficult summarily to eject a third class ticket holder who tendered the difference in fare and refused to make way for the holder of a first class ticket. There is, indeed, an Irish case (McCarthy *v.* Dublin, Wicklow & Wexford Railway Company), decided when Southern Ireland was still part of the United Kingdom, which appears to lay down that no one has a right to enter a railway train unless he has agreed with the company to carry him, and that a person entering a train without a ticket may be removed from it as a trespasser, even though he tenders the fare. This, however, does not seem, under present conditions, to give a right of summary ejectment as against even a trespasser, and would be a very risky form of procedure to adopt. In any event it does not meet the case of the third class ticket holder who tenders the difference in fare, and has the support of the direction by the Ministry of War Transport to the effect that third class passengers are entitled to occupy vacant first class seats once third class accommodation is full.

It may, perhaps, be laid down as a broad general rule that most offences by railway passengers do not give the railway companies a right, so to speak, of self-help, but have to be the subject of court proceedings. If a passenger were wrongfully ejected from a train by one of the staff the company might very well be held liable in damages. There would seem, therefore, to be no summary legal remedy open to a railway company unless the third class passenger refused to pay the excess fare and to give his name and address; even this might be difficult to enforce in view of the direction by the Ministry of War Transport. It is absurd to talk of abolishing first class travel in the sixth year of war just because the very heavy increase in passenger travel, compared with pre-war, combined with the heavy reduction in passenger train services necessitated by Service requirements, is causing considerable overcrowding on certain trains. The running of a few more passenger trains would rapidly improve the position, but unfortunately there is little prospect of this being done for the present.

Railway Maps

AMONG the records kept in the Distances Department of the Railway Clearing House are some 250 different editions of various railway maps, most of them published by the Clearing House. Among the earliest is one compiled by Zachary Macaulay; it is of England & Wales and Scotland combined, dated 1854, and showing the railway systems in different colours. Some nine editions follow to 1881. In 1874 Mr. John Airey, a clerk in the service of the Clearing House, in conjunction with Mr. Henry Oliver of the Mileage Department, published a railway map of London with the lines in different colours filled in by hand, with distances in miles and chains shown between stations. This was followed by Yorkshire; Lancashire; Derby & Notts.; Durham; Manchester; South Wales; Cumberland; East of England; Gloucester & Oxford; South of England; Staffordshire; and West of England. They were of varying scales, but mainly 2 miles to 1 inch. The first edition of Airey's England & Wales map was on a scale of 11 miles to 1 inch. These were all engraved on copper plates by Mr. J. Emslie, of London, and were printed by McCorquodale & Company, Cardington Street, Euston. The Book of Railway Junction Diagrams first appeared in 1859, showing the junctions between the various railway companies, the distances between points in miles and chains, and also a list of every company's running powers and working arrangements. These maps and diagrams had a ready sale, not only to the various railway officers but also to business firms and railway students. In 1894 Parliament insisted on the right of members of the public to purchase all these railway maps and diagrams.

In 1895 the Railway Clearing House purchased from Mr. John Airey the business and stock, which included the maps, diagrams, and Hand Book of Stations, and the Staff of the Distances Department was then given charge of the sales. Mr. J. P. Emslie, the engraver, was then commissioned to prepare a railway map of England & Wales, based on the Ordnance Survey, on a scale of 7½ miles to 1 inch. Four copper plates were engraved, making up the full map, and the first edition of 500 copies was printed in 1896, with every railway separately coloured, by McCorquodale & Company. This map was evidently much needed, and the edition was soon exhausted; a reprint was published in 1897. A similar map of Scotland in two sections (as one map) was also prepared in 1896, and one of Ireland in two sections (as one map) in 1897. In 1899 a successful experiment was made in producing a map of England & Wales on a scale of 10 miles to 1 inch, reduced by photography from the 1897 edition. The existing sectional maps were taken in hand and re-engraved. The first to be issued was that of London and its Environs, on a scale of ½ mile to 1 inch, in 1899.

A new sectional map of the Edinburgh & Glasgow District was engraved by Mr. Emslie, showing distances between stations and published in 1898. Lancashire, Manchester, Staffordshire, Yorkshire, South Wales, Durham, and Gloucester & Oxford followed, all based on the Ordnance Survey and all on an average scale of 2 miles to 1 inch. The Cumberland, East of England, South of England, and West of England maps are all adaptations of Mr. Emslie's earlier work. These maps were all printed in colours by McCorquodale & Company. An edition usually consisted of 200 copies, and a new map was published when the stock was exhausted. The Distances Department is still producing and selling these maps, but there are now temporary wartime restrictions on the sale. Mr. James Emslie, who was not only a clever engraver but also a railway enthusiast, died in 1910. The Edinburgh & Glasgow map was superseded in 1932 by a map of the Glasgow, Coatbridge & Paisley District drawn and printed by McCorquodale & Company, and in 1933 the Distances Department prepared a map 6 ft. long, consisting of 1-inch ordnance maps showing in colours the railways and various boundaries within the London Passenger Transport Board Area. The current edition of the large England & Wales map was published in January, 1940, and that of the Scotland map in January, 1941.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

A First-Class Grievance

Northwood. December 27

To the Editor of The Railway Gazette

Sir,—It seems to have been recognised in past times that a passenger who is obliged to travel in an inferior class of carriage to that for which a ticket has been issued to him is entitled to have the difference in the fare refunded. *The Book of Information for Railway Travellers and Railway Officials*, by R. Bond, Superintendent, Newport Station, G.W.R., published as far back as 1865, has the following paragraph:—"Now in cases of passengers being obliged to proceed in an inferior class of carriage to that which their fare authorises, instead of bickering and jabbering with the officials, they should call the superintendent's attention to the fact, and after the journey is completed make a formal claim for the difference of fare. This mode is usually simple and effective."

Similar advice is given in *The Railway Passenger's Handbook* by G. B. Lissenden, a comparatively recent publication, where it is stated that "the passenger should be careful to notify the guard of the train that he is travelling in an inferior carriage, and the refund should be demanded before the ticket is given up."

In some of the companies' byelaws the right to a refund was explicitly recognised—*e.g.* Lancashire & Yorkshire Railway (1875), Great Western Railway (1876)—but with the difficult conditions "that the application is made before the departure of the train, in which case the difference will be immediately returned."

Presumably this right to a refund is still recognised, for, in a letter in your issue of December 8, reference was made to a refund by the G.W.R. under present war conditions. Is there any reason to suppose that similar demands properly substantiated would, or could, be refused by other companies?

I admit such a demand would be irksome, but it is a remedy.

Yours faithfully,

REGINALD B. FELLOWS

Unknown People and Their Parliament

London. January 7

To the Editor of The Railway Gazette

Sir,—All through his contribution to your last issue Mr. Ashley Brown protests too much. To speak about the pamphlet "Who Owns the Railways?" making "a curious, almost a disturbing discovery" is simply to lose all sense of proportion. For more years than the writer cares to recall, it has been well known that railway stocks were held by a large number of people. He can remember one or two of the chairmen of the old constituent companies enlarging on the point; and the amalgamation schemes of 1923 emphasised it through the amount of work caused to the Registrars of the four groups by the numerous separate holdings. All that the pamphlet does is to give an analysis of these holdings. Its calculations can have no influence in deciding the place which the railways are to occupy in our transport organisation after the war.

Mr. Brown next commits himself to the assertion that "the proprietors of the railways, in short, owe to Parliament nothing whatever." In fact, Parliament gave statutory powers and protection under which the railways did remarkably well until 1914. In return for the practical monopoly of long-distance transport which they enjoyed, the companies were naturally subjected to obligations, but the various regulatory acts were passed in the public interest after enquiries which proved that the policy pursued by the railways had not always been judicious.

Mr. Brown's attack on the Railways Act of 1921 is unfair. He must know that the Act was designed to help the railway companies who could not have carried on without it. The Act did not fulfil the Government's intentions entirely, because the development of road motor transport made the rates and charges provisions unworkable. The new situation was, however, eased by the grant of extension road powers to the railways, from which they have earned a substantial revenue, and by the introduction of the licensing system for road vehicles. How then, can Mr. Brown justify his statement that "far from incurring further liabilities towards those who had created and maintained the railways, Parliament ignored the disabilities it had imposed on them"?

In view of the probability that the railways will be unable to continue as private undertakings after the war, unless the Government devises some means of giving them financial stability, it seems doubtful whether an article based on sentiment and not on historical fact will be helpful either to the companies or to their stockholders.

Yours faithfully,

HISTORICUS

[The Parliamentary obligations and restrictions placed on the railways were considered necessary at the time, because it was held that the railways had a quasi monopoly. After the war of 1914-1918 the advent and rapid growth of road transport, both for passenger and goods traffic, effectively destroyed the monopoly. Is not the real difficulty that Parliamentary controls of the railways were not immediately adjusted to meet the new conditions?—Ed. *R.G.*]

Broad-Gauge Travel in the 1850s

Essex House, Essex Street,
Strand, W.C.2. December 27

To the Editor of The Railway Gazette

Sir,—Bernard Lord Coleridge in his book "This for Remembrance" thus describes journeys to the West during the first seven years of his life, which commenced in 1851:—

"Once a year we journeyed West to Ottery St. Mary. Paddington was the station. The luggage was placed under tarpaulin and cord, upon the top of the railway coach. Iron hoops representing the height of the tunnels hung suspended for the station roof and the luggage was bound to pass under these hoops. The carriages, broad-gauge, were low and dark, lighted at each end by three small windows, the middle one a square, and the two wide ones D-shaped. In the centre of the compartment stood a door, dividing it into two. We got out at Cullompton and drove by fly to Ottery St. Mary. My grandfather and grandmother would sometimes travel down seated in their own carriage strapped to a flat railway-truck. But they left the train at Chippenham, for my grandmother would never go through a tunnel."

Yours faithfully,

KENNETH BROWN

Pioneer Locomotive Types in New Zealand

London, W.C.1. December 16

To the Editor of The Railway Gazette

Sir,—I have recently received the October issue of *The New Zealand Railway Observer*, produced by the New Zealand Railway Correspondence Society (of which I am a member), and in it Mr. A. N. Palmer makes some interesting remarks, under the title "Pioneer Locomotive Types," concerning New Zealand claims to priority in the introduction of various well-known locomotive wheel arrangements. The following are the pertinent comments:—

"Although it is widely known that the first successful Pacific type locomotives were designed in and built for New Zealand, it does not seem to be appreciated generally that New Zealand was early on the scene with at least three other wheel arrangements. The earliest 2-4-2, or Columbia type locomotives ever built, apart from experimental designs, appear to have been the eight little engines built for the New Zealand Railways in 1877-78 by the Rogers Company of Paterson, New Jersey, and classified "K." Described in a contemporary publication (Forney's *Catechism of the Locomotive*) as "Hudson double-ender locomotives," these fine and speedy little engines are known to all who have studied the New Zealand railway system. It was not until the nineties that the 2-4-2 wheel arrangement was introduced to Great Britain and America.

"Similarly, the general introduction of Prairie, or 2-6-2 type locomotives in those countries was not until the nineties, but in 1884 the English firm of Nasmyth, Wilson & Company had built three "V" class 2-6-2 engines for the Wellington & Manawatu Railway Company, and, in the following year, ten more of the same type for the New Zealand Railways. Baldwin built six "N" class 2-6-2 engines for the New Zealand Railways in 1885, and these were the ancestors of a fairly long line of Baldwin, 2-6-2 engines. We know of only one earlier 2-6-2, the *Luzerne*, built for the Delaware, Lackawanna & Western Railroad in 1878.

"In 1901, of course, the world's first successful "wide-firebox" 4-6-2 or Pacific type locomotives, designed in New Zealand, were built by the Baldwin Locomotive Company. Thirteen engines were supplied to this design, classified "Q" on the New Zealand Railways, and these were the pioneers of what, for a great many years, was probably the most versatile, most popular, and most widely-used locomotive type in the world. There had been earlier locomotives professing a 4-6-2 wheel arrangement, though, in effect, these were mostly designed originally as "ten-wheelers," or 4-6-0 engines, but proved too heavy for the track of the time and had a trailing truck added under the cab to relieve the driving wheels of some of the

weight. These engines appear to have been running on the Chicago, Milwaukee & St. Paul Railway in the early nineties. There was also an experimental "camel-back" 4-6-2 boasting a patent "pant-leg" firebox.

"Is is often claimed that the first 4-8-2 or Mountain type locomotives were built in 1912 for the Chesapeake & Ohio Railway, but South Africa had introduced this wheel arrangement three years earlier, in 1909, when a number of engines of this type was built for the Cape Government Railways and the Natal Government Railways by the North British Locomotive Company and the American Locomotive Company, respectively, while New Zealand had been even earlier, by only a few months it is true, her first examples of the 4-8-2 class 'X' having been built in 1908 in readiness for the working of traffic over sections of the nearly-completed North Island Main Trunk line. Thus, in the introduction of new locomotive types during the development of her railways, New Zealand has certainly not been lagging."

As it seems to be of wide general interest to settle claims to priority in the introduction of locomotive wheel arrangements, the publication of the foregoing remarks in your widely-read columns should serve the purpose of producing such confirmation or refutation as shall settle authoritatively to whom credit is due.

Yours faithfully,
CHARLES E. LEE

London-Manchester Services

23, Strafford Gate, Potters Bar,
Middlesex. January 1.

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In view of the serious traffic congestion on the L.M.S.R. main line out of Euston, and the great delays that have recently occurred, I venture to bring the following suggestion to your notice. If the entire express service between Euston and Manchester were cancelled, and replaced by a substitute service from Marylebone, a very great saving in track capacity on the L.M.S.R. main line would result, and the punctuality of services over this line would be improved, as much of the delay is caused by congestion at Euston itself, and at such junctions as Rugby and Crewe.

As you are aware, during the last war the express service between Euston and Manchester was cancelled, and the Manchester workings concentrated at St. Pancras. As, however, the former Midland carries a very heavy coal and freight traffic, in addition to a greater passenger traffic to other areas, I would suggest that the line from Marylebone more easily would bear the additional traffic. I am, of course, aware that this route is some 20 miles longer than the direct route from Euston, and has more severe gradients from Sheffield onwards, but the improvement in punctuality would more than counter-balance the slight increase in the overall journey times. I have drawn up a suggested time table of the substitute service over this route, and enclose it herewith. The timings would be well within the capacity of the locomotives normally used for the 2 daily semi-fast trains, which are the only long distance trains over this route at the present time, apart from the night mails. As the heaviest traffic over this line is between Manchester and Sheffield, I have where possible fitted the times of the suggested trains to those of existing services over this route. If it should be objected that certain of the proposed trains could not be accommodated at the L.N.E.R. platforms at Manchester London Road, the trains in question could be diverted to Manchester Central, *via* Levenshulme, the increase in journey time is only about 10 minutes.

In addition to improving the service to Manchester, the cities of Leicester, Nottingham and Sheffield would benefit materially from the suggested alterations. The through coaches at present provided to the Colne, Huddersfield, and Bradford areas could run on the Marylebone trains, and be detached and attached at Penistone or Guide Bridge. The intermediate places between Euston and Manchester would not suffer, as there is an adequate service to and from Rugby, Stafford and Crewe by other services, and connections could be given to Stoke-on-Trent off the Liverpool or other existing main-line services at Stafford.

Yours faithfully,
JOHN WATSON

SUGGESTED TIME TABLE

—	—	A	A	B	C	D	E
		a.m.	a.m.	a.m.	p.m.	p.m.	p.m.
Marylebone ...	Dep.	8·30	10·15	11·10	2·30	3·30	5·30
High Wycombe ...		9·5	—	—	—	—	—
Harrow-on-the-Hill		—	—	11·28	—	3·48	—
Aylesbury ...		—	—	12·17	—	4·36	—
Brackley		—	—	—	—	5·6	—
Woodford and Hinton ...		—	—	12·56	—	5·21	—
	Dep.	—	—	12·58	—	5·23	—
Rugby		10·11	—	1·21	4·9	5·46	—
Leicester Cen. ...	Arr.	10·32	12·10	1·47	4·30	6·12	7·25
	Dep.	10·36	12·14	1·52	4·34	6·17	7·29
Loughborough ...		—	—	2·8	—	6·33	—
Nottingham ...	Arr.	11·6	12·44	2·28	5·4	6·53	7·59
	Dep.	11·10	12·48	2·33	5·8	6·58	8·3
Sheffield	Arr.	12·0	1·38	3·39	5·58	8·0	8·53
	Dep.	12·5	1·43	3·43	6·3	8·5	8·58
Penistone	Arr.	—	2·6	4·6	6·26	8·30	—
	Dep.	—	2·9	4·8	6·29	8·35	—
Guide Bridge ...		—	2·45	4·56	7·5	9·22	—
Manchester Ldn. Rd.	Arr.	1·10	2·54	5·5	7·14	9·31	10·3
			F	G		H	I
		a.m.	a.m.	a.m.	p.m.	p.m.	p.m.
Manchester Ldn. Rd.	Dep.	8·20	9·45	11·0	2·20	3·30	5·20
Guide Bridge ...		—	9·56	11·11	2·31	3·41	—
Penistone	Arr.	—	10·35	11·53	3·5	4·23	—
	Dep.	—	10·38	11·56	3·8	4·26	—
Sheffield	Arr.	9·25	10·56	12·15	3·25	4·45	6·25
	Dep.	9·30	11·1	12·20	3·30	4·50	6·30
Nottingham ...	Arr.	10·20	11·51	1·27	4·20	5·51	7·20
	Dep.	10·24	11·53	1·32	4·24	5·56	7·24
Loughborough ...		—	—	1·53	—	6·16	—
Leicester Cen. ...	Arr.	10·54	12·25	2·9	4·54	6·30	7·54
	Dept.	10·58	12·29	2·14	5·58	6·35	7·58
Rugby		11·24	—	2·44	5·23	7·13	—
Woodford and Hinton	Arr.	—	—	3·4	—	7·33	—
	Dept.	—	—	3·7	—	7·36	—
Brackley		—	—	—	—	7·52	—
Aylesbury ...		—	—	3·46	—	8·19	—
Harrow-on-the-Hill		—	—	4·33	—	9·5	—
High Wycombe		12·25	—	—	—	—	—
Marylebone ...	Arr.	1·0	2·24	4·50	6·58	9·22	9·53

NOTES

A. 8.15 down slow would leave at 8 a.m. run 15 min. earlier to Leicester, shunt there for 10.15 *ex* Marylebone and proceed to Nottingham at 12.20 instead of 12.38. 8.30 down would keep clear of this train by running *via* High Wycombe.
B. Existing 9.50 a.m. semi-fast, running 1 hr. 20 min. later, making all present calls except Gorton.
C. To run *via* High Wycombe to keep clear of 1.50 down slow.
D. Existing 3.30 down semi-fast, making all present calls.
E. 4.54 down Woodford to shunt for this train at Brackley.
F. Existing 9.45 working to Sheffield, accelerated south thereof.
G. Existing 9.45 semi-fast running 1¼ hr. later and making all present calls.
H. Existing 3.50 up semi-fast running 20 min. earlier and making all present calls. Would overtake 4.4 Sheffield-Nottingham while latter running round Chesterfield loop. 5.45 slow Nottingham-Leicetser would run 28 min. earlier as on Sats. at present.
I. Would overtake 5.40 Sheffield-Nottingham while latter on Chesterfield Loop.

Publications Received

King's Cross to Waverley. By "Timoleon." William Hodge & Co. Ltd., Edinburgh. 7½ × 5. 168 pp. Price 7s. 6d.—This book is written in the form of a diary of a well-known broadcaster who, in the course of his duties as a civil servant, travelled frequently between London and Scotland, and because many of the entries are very interesting we published an extract on our "Scrap Heap" page in our last week's issue. A further extract is on page 36. The title sounds like a substitute for "On Either Side," but anybody who purchases it for a guide to the East Coast route will be as disappointed as the farmer who brought "Notes on the Construction of Sheepfolds," only to find that Ruskin was expatiating on church discipline. Why "Timoleon" of all pseudonyms? The real Mackay, as they would say in the North, was a man of action, not words. He slew his own brother to stop him from becoming tyrant of Corinth. Later, he saved the liberties of the Greek cities in Sicily, routed the Carthaginians, when the odds against him were 7 to 1, and then settled down at Syracuse. Timoleon has been called the Garibaldi of antiquity: nobody would compare a civil servant to the Italian patriot, even if the B.B.C. let him talk occasionally.

Economical Lubrication of Steam Turbines and Reciprocating Steam Engines. Industrial Bulletin No. 3. Oils.—This bulletin, recently issued by the Ministry of Fuel & Power, is the third in a series dealing with lubricating oil economy. The duties of lubricating oil in the circulatory systems of steam engines are extremely heavy, and considerable influences, such as the presence of small quantities of suspended metallic impurities, excessive frothing, raw water, stagnation, sludge, and the addition of new or different oils to an existing charge, may result in chemical action leading to rapid deterioration. The bulletin outlines briefly the various causes of deterioration; the care which should be taken to prevent a fouled condition of the oil; the separation of impurities and methods of reconditioning by means of the centrifuge, and heat-settling tanks.

The degreasing of stagnant regions in the oil system which may cause accumulations of slime or sludge is also dealt with and some advice in summarised form is given in this useful bulletin to indicate where economies in lubricating-oil consumption are possible, and the means by which they may be effected.

The Scrap Heap

TYPIST'S ERROR

£2.10.0 "Austerity" Locomotive.

* * *

The two free scholarships to McGill University which have been offered by the Canadian Pacific Railway Company for many years are being made available again in 1945. Men and women employees of the C.P.R. permanent staff under 21 years of age, and minor sons and daughters of employees, are eligible for selection.

* * *

An Impressionist painter could, perhaps, make a powerful enough nightmare nocturne out of Liverpool St. Station; but is there any other London terminus so almost completely squalid, so tiringly chaotic, so true a type of the industrial capitalism which produced it?

I should imagine that porters and others working there permanently have a considerably slighter expectation of life than workers at the comparatively grandiose and convenient Waterloo or Marylebone; and only an omniscient psychiatrist could guess at the mental and spiritual damage done by Liverpool St. to the crowds of City workers who rush through it, with tense, set faces, twice daily.

However, the horror of this hell-hole, and the primitive nature of many of the trains which go to and from it (still unheated, even these last few days), have undoubtedly helped to preserve Essex, once you get away from suburbs and arteries, as the least spoiled of the home counties. There are large and beautiful stretches of Essex which were spared completely by the L.N.E.R., and therefore by the speculative builder; I hope we shall get them planned and zoned properly so that they may be bequeathed intact to posterity.—*Tom Driberg, M.P., in "Reynolds News."*

* * *

Permanent way men are always on the look out for objects on the line, but they had a shock recently when examining the L.M.S.R. line near Eastriggs Station, Dumfries-shire, to find a live seal making its way along the main line. It apparently had been washed up a small stream from the Solway by the tide and had got access to the railway at a point where the railway crosses the stream. The men placed a rope round the seal and dragged it back to the stream.

* * *

100 YEARS AGO

[*From* THE RAILWAY TIMES, *Jan.* 11, 1845.]

NEW AND NOVEL RAILWAY MAP.
Just Published, price One Shilling,

THE RAILWAYS OF ENGLAND AND WALES, laid down with care and accuracy, distinguishing those which are open, those in progress of construction, those for which Acts were obtained last session, and those now projected, and brought before the public, up to the end of October last. This Map is constructed upon a novel principle, is beautifully engraven upon Steel, and exhibits to the eye every actual and projected Railway, without involving the trouble of disentangling it from the turnpike roads upon which it abuts. It is the best Railway Map extant.

Published at the *Railway Times* Office, 122, Fleet-street, London.

* * *

Account of what went on during the big hold-up of trains from the North is given by a man who spent 4 hr. 25 min. in a compartment, getting from Watford to London (distance 18½ miles) recently.

"I was interested," he says, "to see what people would talk about. Topic turned out to be nationalisation.

"We were on the 10.20 from Manchester. One North Country business man remarked: 'If only the railways were nationalised, this sort of thing would not happen. We would be able to give our M.Ps. a jerk.'

"This infuriated another man, who said: 'Not at all. If this line felt that the trains on some other line were beating them to it and getting through, we would be off in a jiffy. As it is, they just don't care.'"

After debating the point for nearly an hour, the passengers became so angry that they got out, went along to abuse the engine-driver.

"He was a fine, grizzled old man with a bristling moustache. He shouted: 'Do you think I enjoy lolling about in the engine-cabin, waiting on the signals? Go and find some officials to abuse.'"

The passengers duly departed to find some, but could not find a single one. Maybe they had got wind of what was coming to them.—*"William Hickey" in "The Daily Express."*

The millionth U.S. soldier passing through the Southern Railway docks at Southampton for the European front was welcomed by the Mayor of Southampton (Councillor R. J. Stanger, M.C.), Lt.-Colonel W. D. Lamport (U.S. Army Director of Port), and Mr. H. A. Short, M.C. (S.R. Docks & Marine Manager)

"IN ADVANCE OF"

This expression is used in British rule books in the opposite sense to that met with on the Continent, where an "advanced signal" is in the position where our distant would be and is encountered first and not last by a driver in passing a station. Popular usage here would fit in with the Continental practice and a non-railwayman would speak of, say, a warning board at the approach to a junction as being "in advance of it," or giving "advance warning" of it. All our rules and regulations, however, are based on the opposite conception and designate something as being "in advance of" a certain point or object if the driver encounters it after passing that spot, not before. Anything met with before is "in rear of" the object. In America "in advance of" bears our railway meaning, but some confusion has been created there by introducing the word "advance" into some signal aspect designations in the opposite sense, a curious oversight.

* * *

PASSENGER OR PARCEL?

"A Traveller in Little Things" is the title of one of W. H. Hudson's books. I sometimes feel I am that. In my satchel are my papers: memoranda, two Stationery Office prints, a flat box of cigarettes and the usual mass of notes and addresses, interviews, and other scrap.

I wish I had some more elation to bring to my task. I am just sent hither and thither from Waverley to Kings Cross—from Kings Cross to Waverley. "Going by Railroad," wrote John Ruskin in "Modern Painters," "I do not consider travelling at all. It is merely being sent to a place and very little different from becoming a parcel." Frankly, Mr. Ruskin, being a parcel is better. You are handled with care, you are insulated with corrugated paper and bound up with twine.

While I bump my way along the platform, I envy the parcels. They are neatly stacked on an electric trolley and a lady (who was once a barmaid, she told me) in trousers has them propelled along. There is room for them in the van—there is room for all the parcels that come.

How are the mighty fallen! How easily blazing ambition is snuffed out! I am ashamed of myself, I who aspired to a C.B.E. am now fallen so low that I envy a parcel.

I am a traveller in little things, very small beer, I fear, in a very small parcel.

Or is it a cracked bottle?—*From "King's Cross to Waverley" by "Timoleon," published by William Hodge & Co. Ltd.*

* * *

TAILPIECE

(*"Running foreman" is a familiar grade in locomotive departments*)

Running foreman I've heard say
Wear their boots and socks away,
Tearing up and down the line
Chasing locos., wet or fine.

Having seen them, this I know,
Up and down the track they go,
Testing brakes and checking speeds
On the footplates of their "steeds."

Running foreman—spare the term!—
Are well-versed in valve and therm,
And their skill detects the cause
Of a locomotive's flaws.

Running foreman set the pace
So that "iron steeds" may race
Through the night full steam ahead
When we're lying safe in bed.

W. N.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

WESTERN AUSTRALIA

Government Tramways Results

The statement of working for the year ended June 30, 1944, of the Perth and suburban tramway system, an undertaking operated under the control of the Commissioner of Railways, indicates that there was a surplus, after payment of working expenses and interest, of £36,846, compared with a surplus of £34,969 at the close of the preceding financial year. The percentage of net revenue to capital was 6·92, and the percentage of net return to capital was 3·01. Earnings amounted to £515,304, an increase of £45,729 over the previous year, and working expenses to £430,496, a rise of £43,590. Tramway earnings have been influenced materially by war conditions and there has been a consistent increase over recent years. Working expenses have risen on account of basic-wage increases, higher maintenance costs, and the natural cost of earning the additional revenue. The operating ratio for 1943-44 was 83·54 per cent., compared with 82·4 per cent. for the previous year.

The car-mileage in 1943-44 was 5,221,155, an increase of 395,942 over the previous year. The number of passengers carried was 54,669,322, an increase of 6,678,067. During the year five trolleybuses were added to the system.

SOUTH AFRICA

Houses for S.A.R. Employees

An £850 house has been designed by railway architects in South Africa. Houses of this type, which are being built under the railway house-ownership scheme, are for married European railworkers. Although small, for they have to be within the means of railworkers, these houses are modern and comfortable. The owners will have their own pieces of ground, and, if they wish, will be able to grow vegetables and fruit.

High Railway Earnings

That ended December 2 last was the fourth consecutive week in which earnings of the South African Railways have exceeded £1,000,000 (the total for the week was £1,042,870, compared with £935,918 for the corresponding period of 1943).

INDIA

" Punjab Mail " Derailment

As briefly recorded in *The Railway Gazette* of December 1, an accident occurred to the " Punjab Mail " (6 Down) on November 23. The locomotive and six coaches next to it were derailed, and plunged over a bridge which crosses swampy ground west of Karisath Station on the East Indian Railway main line. Eight passengers were killed, sixteen seriously injured, and 86 slightly injured.

According to an official statement by the Bihar Government, the derailment was caused by a rail having been removed at the approach to the bridge. The seventh coach capsized, but did not leave the bridge.

Rolling Stock Sent Overseas

Sir Edward Benthall, War Transport Member, Government of India, speaking recently in the Legislative Assembly, said that 1,418 broad-gauge wagons, 7,858 metre-gauge wagons, and 206 metre-gauge locomotives had been sent overseas. Of those, 42 metre-gauge locomotives and 835 metre-gauge wagons had been returned. All would be serviceable after overhaul.

Penalties for Irregular Travel

Travel on the roof, steps or footboards of any carriage, locomotive, or any part of a train not intended for the use of passengers is prohibited by Defence of India Rule 85C, issued on November 24. If any person contravenes the Rule, he may be removed from the railway by any railway servant or police officer, and is punishable with maximum imprisonment of six months, or with a fine, or with both. Questions have been asked in the Assembly recently on the deaths of passengers who had been travelling on footboards and roofs of carriages.

UNITED STATES

Mallet Locomotive Order

The Baltimore & Ohio Railroad, which recently took delivery from the Baldwin Locomotive Works of 20 powerful Mallet articulated steam locomotives of the 2-8-8-2 wheel arrangement, has ordered 10 more of the same type from that company, at a total cost of $2,723,000. Delivery is expected between May and August, 1946.

Old Steel for New Erecting Shop

The Southern Pacific recently erected at Sparks, Nevada, a shop for heavy repairs to articulated locomotives. In view of steel shortage, the steel frame of a shop which at one time had been used for engine repairs at El Paso, Texas, was recovered and re-erected on the new site. The building, which had been out of use for some time, had been dismantled in 1941, but the frame was still in good condition, and special care therefore had been taken in the dismantling and storage of the parts.

The new shop is 252 ft. 8 in. long and 80 ft. wide, with Warren roof trusses spaced 20 ft. apart, and is served by a 200-ton crane with two lifting beams and a 15-ton auxiliary crane. For the brick side-walls of the original structure, corrugated asbestos-cement walls have been substituted, to give a measure of insulation in hot weather; and two built-up timber columns, each 50 ft. 6 in. long, have been used to strengthen each end wall. The new shop contains eleven inspection pits 58 ft. long, each of sufficient length to accommodate one of the articulated locomotives, and served by a transfer table outside, which runs the whole length of the shop. It is estimated that, when full manpower is available, the shop will be capable of overhauling seven 4-8-8-2 locomotives every month.

Hurricane Damage in N.E. States

On the evening of September 14, a hurricane struck the north-eastern seaboard of the United States, and left in its wake a trail of destruction in which the coastal railways were severe sufferers over a belt of country 1,000 miles long. Fortunately, the damage was far less than in the 1938 hurricane. Acting on meteorological warnings, certain lines had gangs assembled, ready for repair work, well in advance of the arrival of the storm. On Long Island, for example, 3,500 trackmen, signalmen and linesmen had been mustered; and, equipped with cross-cut saws, they removed trees from the tracks almost as rapidly as they fell. At Long Beach and Rockaway 70 multiple-unit electric motor coaches were marooned in water which had risen from 3 to 4 ft. above the tracks.

On the south side of New York Harbour the Central Railroad of New Jersey was worst affected on its Seashore line, between Matawan and Highlands. There washouts were numerous, and sand was washed or blown across the tracks to a depth of 3 to 4 ft.; service was interrupted completely for over 3 days, and not fully restored until 10 days later. In all the Central of New Jersey yards along the water front work was suspended, and at the height of the storm the ferry service between New York and Jersey City was held up.

In New York, the Grand Central Station of the New York Central System and New York, New Haven & Hartford Railroad was out of action for 4 hours, due to flooding at 149th Street, which made it necessary to cut the current off the third rail.

Worst-Affected Line

As in the 1938 hurricane, the New York, New Haven & Hartford Railroad probably was the worst affected. Water in the cutting of the main Shore Line (New York-Boston) at New Haven caused a complete suspension of service for just over 11 hr. There were numerous washouts between New Haven and Boston, and 48 hr. elapsed before the full Shore Line service was restored. It is estimated that, when the storm broke out, 1,500 passengers were on board the night trains for New York at Boston South Station the dining car staffs were instructed to provide free food and hot drinks to all these during the time of detention; many of the waiting passengers at Boston and Providence also were supplied with free meals in the station restaurants.

On the electrified main line of the Pennsylvania Railroad from New York to Philadelphia and Washington, a commercial electric power line fell across the catenary of the overhead conductors, and short-circuited the entire four-track installation between Princeton Junction and Morrisville, as well as affecting the electric signalling as far as Bristol.

CANADA

Diesel Shunters for C.P.R.

Delivery is being taken by the Canadian Pacific Railway from the American Locomotive Company of ten further diesel-electric shunting locomotives of the maker's standard Alco-G.E. type, with electrical equipment by the General Electric Company. The first three have gone to the marshalling yards at Winnipeg; the next two are assigned to Calgary, and the last five to Toronto. With the five which were delivered to the Outremart yards at Montreal in the autumn of 1943, the C.P.R. will have acquired fifteen 1,000-b.h.p. diesels in the last fifteen months.

The new shunters have six-cylinder supercharged diesel engines; they are of the double-bogie type, with each of the four axles motor-driven. Each locomotive is 45 ft. 6 in. long, 10 ft. wide, and of a maximum height above rail of 14 ft. 6 in.; the locomotive wheelbase is 30 ft. 6 in., and it is possible for one of these machines to traverse a curve of as short radius as 50 ft. Tractive effort, at 30 per cent. adhesion, is 69,000 lb., and the locomotives are capable of handling loads of up to 5,000 tons (4,460 tons of 2,240 lb.) on level track. Their maximum permissible speed in road transfer work is 60 m.p.h.

The first five locomotives of this type are giving excellent service at Montreal; their average fuel-oil consumption during an 8-hr. shift is 30 gal. only, so that they are able to work for three days without refuelling. Inspection once every month is found adequate to keep them in good running order.

XUM

The Relationship between Smokebox and Boiler Proportions*

Points in Mr. D. W. Sanford's paper discussed

MR. O. V. S. Bulleid remarked that this country owed much to the Poles for the development of the double blast pipe, and to the French for perfecting the double chimney. He considered the measurement of smokebox vacua by U-tubes to be out of date; Cambridge gauges, however, showed clearly that between impulses, the smokebox pressure returned almost to atmospheric. In the South of England, the presence of trains was being revealed to enemy aircraft by the steam trail; but he had fitted three-cylinder engines with three chimneys, so that each impulse emerged separately and broke up the trail, reducing its length to about one-fifth. It was curious that these engines steamed quite well with one chimney open to atmosphere. Chimney/blast pipe ratios of about 3/1 mentioned by the author differed widely from the figure of 7/1 for the rebuilt "Lord Nelson" class on the Southern Railway; the blast pipe orifice in the modified engines was increased from 23·75 to 24·5 sq. in., and the chimney choke dia. from 15 to 25 in., after which the engines were much improved.

Mr. H. Andrews referred to the low thermal efficiency of the blast pipe and smokebox (about 5-6 per cent.), from considerations of energy. The blast pipe itself was a convergent nozzle with an efficiency of about 40 per cent., so there must be a large dissipation of surplus energy. The author's efficiency η worked out at 10-15 per cent. If the velocity v_m of the mixture of steam and gases, or alternatively the rate of flow of gases, could be measured, the functioning of the smokebox system could be much better understood. Steaming really depended on the ratio of the steam produced to the steam used. Leakage of steam through the cylinders, therefore, had widely varying effects, according to whether the engine was working hard or lightly.

Mr. E. S. Cox observed that the author based his determination of blast-pipe and chimney dimensions on the proportions existing in an engine known to be satisfactory, and thence deduced the corresponding sizes for other types. Locomotive engineers, however, would prefer a method of obtaining the best proportions for a given class of locomotive, derived from the leading dimensions and characteristics of the engine. One of the first duties of the Rugby test plant should be the provision of reliable data to enable the various factors in the author's constant K to be determined. The chimney choke dimensions, as obtained by the author's method, differed but little from those derived from the much simpler basis of considering the free area through the tubes, the area on choke diameter being 33 per cent. of the latter, for all the author's engines A, B, and C. On the L.M.S.R., the "Coronation" engines had been modified to dimensions very nearly equivalent to those given by the author's method, if the double chimney area were expressed as that of a single chimney. The steam generation, with this modification, was increased, and back pressure was lowered. In successive stages through the years, the "5XP" locomotives on the L.M.S.R. had had tubes of $2\frac{1}{8}$, 2, $1\frac{7}{8}$, and now $1\frac{3}{4}$ in. dia.; the last was made possible by the double blast pipe and chimney, which increased both efficiency and steaming capacity.

Mr. W. F. McDermid referred to the notable success with which engines of the Great Eastern Railway were run with fires only 4 in. thick, which at 60 m.p.h., and regulator wide open, produced nothing visible at the chimney, due to the "notching-up" to obtain early cut-off. He had travelled up Brentwood Bank on one of those engines, with 400 tons behind the tender; with 23 per cent. cut-off a mere trickle of steam could be seen at the safety valve. Attempts by drivers from the Great Northern section to run these engines with thick fires were failures. The telescopic form of tube shown in the Appendix to the paper had the advantage of limiting the size of coal drawn up the chimney, and gave a thicker "bridge" between tubes at the firebox end. Astonishingly low coal consumption could be obtained by lowering the resistance of the boiler tubes and grate.

Mr. E. C. Poultney thought that the paper should take account of the height of the chimney, relative to the tubes, and of the distance from the bottom of the chimney to the blast pipe; experiments with models at the University of Illinois had shown what a notable effect those factors had. On the New York Central Railroad, tests with stationary boilers led to the making of the blast pipe as a sort of nozzle, and to split the jet a sort of basket bridge was fitted across it. The results obtained showed a considerable reduction in back pressure.

Mr. T. Henry Turner said it would add to the value of the paper if sketches of typical blast systems could be included, as a slight historical background. How far could departure from a circular form for the chimney and the blast pipe orifice be made without incurring trouble?

Mr. W. Cyril Williams observed that, in regard to Mr. Turner's remarks, the Algerian express Garratt locomotives had double blast pipes arranged transversely across the tubeplate; both had variable exhaust controlled from the driver's cab. The blast pipes were of the ordinary straight pattern, and superseded the Kylchap arrangement.

Mr. M. A. Crane referred to the influence (substantiated by tests in America) of the area over the brick arch on the steaming qualities. If either the chimney or the length of the brick arch were altered (the blast pipe remaining unchanged), it would have a definite effect on the steaming of the engine.

Mr. H. Holcroft said that of the various theories of the action of the locomotive blast, he inclined to the view that it resembled an ejector in its effects. In running, 70 per cent. of the sparks were found round the perimeter of the chimney, suggesting that the gases were ejected in the form of an annulus. He asked why insignificant air leaks into the smokebox should affect the steaming of a locomotive so adversely. The author mentioned the resistance of the grate, and of the tubes, but omitted that of the smokebox itself. The present-day conventional arrangement of tubes and smokebox gave rise to eddying circulation of a proportion of the gases in the smokebox, which increased the total resistance to be overcome. If the gases emerging from the tubes could be caused gradually to divert upwards, the resistance would be lowered, though spark-throwing would probably be increased. He asked how the square chimneys of certain Belgian locomotives could be treated from the author's viewpoint.

Mr. E. W. Selby said that the Belgian "square" chimneys were square inside as well as outside; they had a square blast pipe with two flaps at the sides to provide variable blast.

Mr. Sanford's reply

Mr. D. W. Sanford, in reply, said that he was aware of the Cambridge instrument mentionel by Mr. Bulleid; but the use of the U-tube was in keeping with the elementary kind of the calculations in the paper. He agreed with Mr. Bulleid in favouring a large chimney; if a 7/1 ratio could be used instead of the 3/1 used on his railway, so much the better. A large chimney would be of no advantage unless the blast pipe was also large, to permit a reduced back pressure. Even with an infinitely large blast pipe, and zero theoretical back pressure, there would still be friction in the steam passages.

In reply to Mr. Andrews, the smokebox efficiency was not the ratio of the work done by the blast pipe in shifting the gases to the energy supplied to it, but the ratio of the vacuum actually produced to the theoretical vacuum which would be produced if the gases entered the chimney at the same velocity as the exhaust steam.

In reply to Mr. Cox, if he himself were a C.M.E., with responsibility for putting, say, 300 new engines on the road, he would rather base the design on well-tried types and proportions than on something which he believed but did not know. Engines A, B, and C in the paper were hypothetical locomotives, not existing types. He hoped that the Rugby testing station, when it got to work, would devise a method of measuring the efficiency of the blast pipe arrangement. The advantage of the method given in the paper for calculating chimney dimensions, as compared with diameters based on the free area, was that it could be applied to "freak" as well as normal engines. As to the use of smaller-diameter tubes, Lawford Fry had shown that one did not get a much lower temperature at the end of a $1\frac{3}{4}$-inch tube than at the end of a 2-inch tube.

Mr. McDermid was quite correct in emphasising the important influence of fired thickness; variations with different classes of coal made it impracticable, however, to allow for it in the paper.

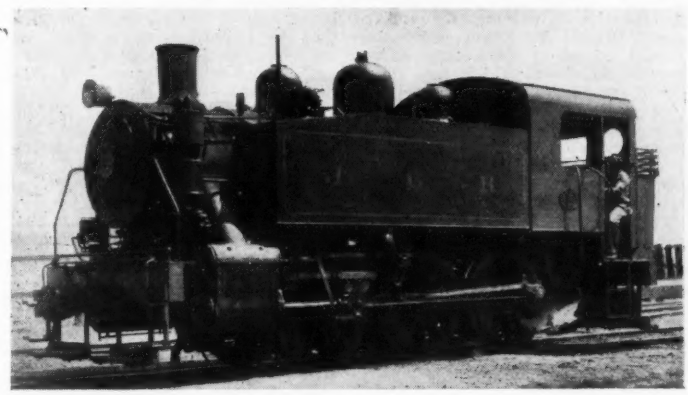
In reply to Mr. Poultney and Mr. Crane, his main theme was a plea for bigger chimneys. It was absurd for 4-6-2s and other large engines to be running with chimneys no larger than those of the smallest engines on the line. He thought the best form of chimney had a good throat to entrain the gases, then a parallel portion, finishing with the topmost 9-12 in. of the same taper as the jet of steam (9 deg.). Probably a circle was the worst possible shape for a blast-pipe orifice, for a circle had the minimum perimeter for a given area; actually one needed a shape which would ensure maximum contact of the steam with the gases. The square Belgian blast pipe and chimney was therefore quite sound, as it gave more area for contact between exhaust steam and gases. That also answered Mr. Holcroft's second question.

* Summary of discussion on the paper by Mr. D. W. Sanford, presented at the meeting of the Institution of Locomotive Engineers on November 30. An abridged report was published in our December 29, 1944, issue

The Railway System of Jamaica—II*

A description of the motive power used and of some features of operation

By H. R. Fox, B.Sc., M.Inst.C.E.,
General Manager, Jamaica Government Railway



U.S.A.-built austerity shunting locomotive in Kingston yard

MAIN-LINE locomotives on the Jamaica Government Railway are of either the 2-8-0, 2-8-2 or 4-8-0 types, with maximum tractive effort of 33,000 lb. at 85 per cent. boiler pressure. Some use saturated, and others superheated, steam. In 1943 two U.S.A.-built austerity locomotives of the 2-8-0 type were obtained. Their maximum driving-axle load is 15½ tons, and the rigid wheelbase is 15 ft. 6 in. They have been very successful so far on the run between May Pen and Montego Bay. One of these engines was illustrated in *The Railway Gazette* of March 3 last.

Most of the main-line engines are 25 years old (some are over 30), passenger coaches 62 years old, and freight wagons 25 years. A number of engines is obsolete, and these, with saturated steam, are of little value in the mountains. The number of locomotives, both shunting and main-line, available for handling traffic has been insufficient to permit of regular shedding for running repairs, as distinct from heavy repairs; and, taking into consideration their age, to handle the traffic it has been necessary to spend a large sum on overtime, not only in operating, but on quick repairs over week-ends. There is a shortage of shunting engines, but this is principally due to the lack of a proper marshalling yard in Kingston, and to the fact, mentioned in the first part of this article, that ten freight sheds have been built (wherever space was available in the yard) for handling the wartime increased traffic.

On account of restrictions on shipping, it has not been possible to obtain an adequate supply of coal; and, as there is a good type of firewood available in the island in large quantities, many of the main-line engines (superheated) have been converted for burning wood. On an average, it takes three tons of wood fuel to equal one ton of good coal. Again, the type of coal now being used is inferior in quality to the pre-war commodity, and this has caused an increase of about 25 per cent. consumption a train-mile.

Before 1943, the maximum driving-axle load was 13½ tons, and rigid wheelbase, 12 ft. 6 in. In 1922 a programme of renewals and strengthening of all bridges to take approximately Cooper's E.40 loading was started, and by 1939 it was completed, with the exception of a few short spans. To increase the capacity of the single-track main line, crossing sidings have been constructed between stations and at stations where no such facility previously had existed.

The workshops in Kingston are well equipped for such a small railway. It has been possible to keep all engines in working condition, and to handle all the traffic offering with the minimum of delays. It is extremely difficult to obtain spare parts from abroad, and these are manufactured in the shops.

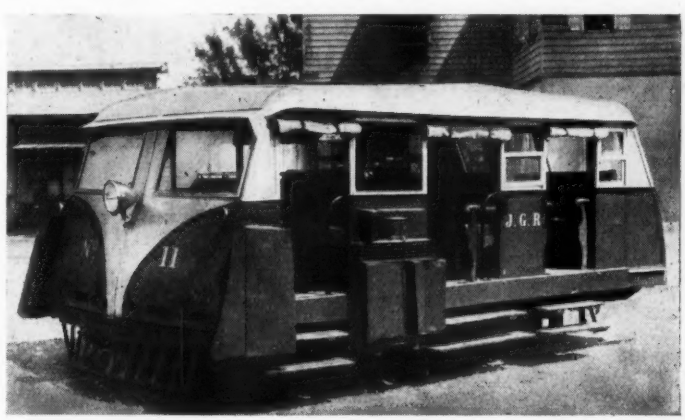
Double heading across the mountains, especially of freight trains, is carried out daily; but there is a difficulty in that there are several long tunnels which cause the crews of second engines to experience great heat; so that between certain stations the practice rarely can be allowed, and then only in emergency. Double heading, although it expedites the movement of traffic, by providing a quicker turn-round of wagons, and reduces overtime expenditure, is not economical.

The present type of locomotive is not satisfactory for a mountain railway with very heavy grades and curvature; a Beyer-Garratt of double the power might be more satisfactory. On the other hand, as traffic is not constantly heavy, the present 4-8-0 type of locomotive with a heavier axle load up to 16 tons, a slightly longer wheelbase, and a boiler pressure of between 225 and 250 lb. might present a better proposition. This matter is now being investigated.

No steam trains are operated purely for passengers, as there is an insufficient number travelling at any one time to warrant the running of a purely passenger train; also, due to the shortage of engine power, it is more economical to run mixed passenger and freight trains. Such trains are slow—the scheduled time between Kingston and Montego Bay, 113 miles, is 6¾ hours. A purely passenger train would be able to make the run, with stops, in 5½ hours. Passengers must be brought to, and taken from, stations by road vehicles, and they can travel only at certain stated times. The slowness of trains, then, combined with the necessity for the use of road vehicles to transport them to and from stations, causes passengers to prefer either private motor cars or buses.

To improve the situation, small diesel passenger units were introduced in 1939, and locally-built petrol-driven passenger units were brought into service in 1940 and 1941.

The diesel units were built by D. Wickham & Co. Ltd., Ware, Hertfordshire. They have seating capacity for eight first class and 46 second class passengers. Each unit is driven by two P6 Perkins diesel engines, one on each bogie, and is equipped with controls at each end. These railcars, of which the railway has three, are of lightweight construction and low cost (an average of £5,500 each landed in the island). They each have run over 200,000 miles, with the minimum of repairs. The original engines are still giving satisfaction. The railcars are extremely comfortable, even over indifferent track, and are much patronised by the public. Fuel consumption is one gallon for seven miles. Other operating expenses are light. They run principally between Kingston and Port Antonio, and must cross the central mountain range,



Petrol-driven 24-seater railcar. The chassis was built by D. Wickham & Co. Ltd., and the body in the J.G.R. Shops

* Part I was published in our issue of January 5

over which the gradients are 1 in 30, and curvature, 330 ft. radius. A more detailed description of these diesel-mechanical railcars was given in *The Railway Gazette, Diesel Railway Traction Supplement*, of October 27, 1939.

The petrol-driven units are equipped with 30-h.p. Hercules (American) engines. They seat 41 passengers. They are, however, not as sturdily built as the Wickham diesel railcars, and upkeep is heavy when they are used on the hill sections of the line. Their operations, therefore, are now confined to the level sections. Petrol consumption is eight to ten miles to the gallon. The chassis of this type unit was imported from the Kalamazoo Railway Supply Company, U.S.A. The front bogie had a very short wheelbase, and this caused severe nosing. The rear bogie was fixed to the chassis and could not pivot. The Railway Mechanical Engineer in charge of railcar transport re-designed the front bogie so that the wheelbase was slightly longer than the gauge of the track (4 ft. 8½ in.); and the rear bogie was made to pivot on a centre pin. Since these improvements were introduced, the vehicles have given no trouble. The body work is of welded construction, and the panelling of native hardwood.

The railway has introduced small inspection rail motor cars for transporting small parties of passengers (numbering from 11 to 25, depending on the size of the unit). Some of these are used on the Ewarton and Frankfield branch lines, and others for parties of passengers who desire quick transport between Kingston and Montego Bay. They will complete the journey between Kingston and Montego Bay in 3 hours, against the passenger-train time of 6¾ hours. These railcars were built by D. Wickham & Co. Ltd. A number of small railcars and gang trollies for permanent-way inspectors, constructed by the same company, also are in use. They are powered by Ford B4 engines with differential drives.

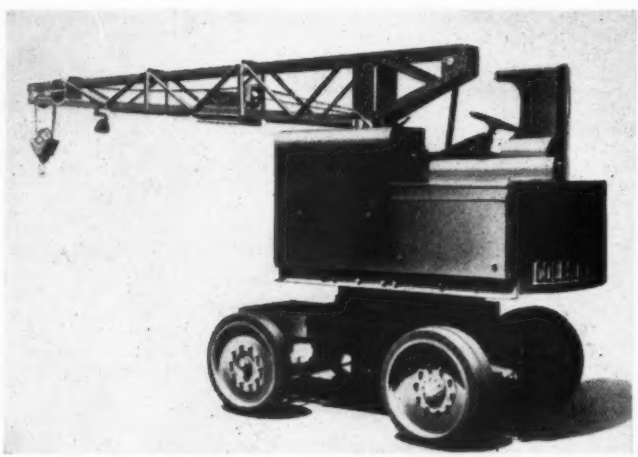
One of the railway's problems has been the cheap and expeditious movement of raw milk. The chassis of one of the Kalamazoo railcars was equipped specially for transporting this commodity from a point 103 miles from Kingston to the condensery; but it was found that the cost of maintenance of the unit was far in excess of the earnings. For such a unit to be successful, it must be very strongly designed to operate over heavy grades and sharp curves. It should be driven by a diesel engine.

Since the advent of the U.S.A. into the war, the railway has been called on to haul large quantities of materials and men in connection with the construction of American Army bases; and a daily steam passenger service and frequent railcar services still are operated for labourers and military personnel.

(Concluded)

A Development in Mobile Crane Design

Fitted with petrol-electric transmission and self-contained variable-speed generator



STEELS Engineering Products Limited, of Sunderland, has developed a new type of petrol-electric mobile crane which is marketed under the name of "Coles Mark V Mobile Crane." This company recently took over the old-established crane businesses of Steel & Co. Ltd. and Henry J. Coles Limited, of Derby, and now manufactures cranes at Derby and Sunderland.

The mark V crane is mounted on a specially-designed chassis with solid rubber tyres, or with pneumatic tyres when these are available. It has four motions, which contribute to its versatility, namely, travel, hoist, derrick and slew, all controlled from the driver's seat, and each of these motions is operated by an electric motor. These motors are energised by Steels design of variable-speed generator, which is in turn powered by a standard-type petrol engine. The use of electric motors ensures very smooth operation, and freedom from complicated gearing and connections.

The patent steering is controlled from the driver's seat on the revolving superstructure, and this has an automatic reversing device which gives normal directional steering even when the jib, and therefore the driver's cabin, has revolved so that it faces the rear of the chassis. The crane can travel with the jib in any position, which is very convenient for manœuvring, but it is desirable to point the jib in the direction of travel whenever possible. The transmission unit has a fully-enclosed 4-speed gearbox, and integral rear-axle housings. The gearbox is directly coupled to the travel motor.

The capacity of this crane is: 5 tons at 6 ft. radius; 3 tons at 10 ft. radius; 1¼ tons at 17 ft. radius; the operating speeds are: hoisting, 5 tons at 12 ft. a min.; slewing, 5 tons at 3 r.p.m.; derricking, maximum to minimum radius in 15 sec. Travelling unloaded, up to 8 m.p.h. and loaded up to 4 m.p.h. Every precaution has been taken to make the crane safe in operation. Separate self-resetting limit switches on the derricking and hoisting motions prevent these operatiins beyond the prescribed limits. An automatic safe-load indicator, which gives visual and audible warning of overloading to the operator, can be supplied at a small extra cost. The speed of all motions is controlled by the accelerator-pedal which permits of slight variations, and as soon as the pedal is released all operations stop and electro-magnetic brakes automatically are applied. Internal-expanding brakes on the travelling wheels are hydraulically operated, and are mechanically coupled for hand parking. All motions have separate reversing switches.

One of the many interesting features of this crane is the advantage of the full 360° slewing motion in either direction, which makes for speed in handling, manœuvrability and accuracy, and permits the crane to operate in confined spaces, such as between a railway wagon and a lorry. The superstructure revolves on a large diameter live ring of steel rollers. Level-luffing of the load when derricking the jib, considerably adds to the simplicity of operation. Loads can be lifted at any point on the full circle, and no jacks or supports are necessary at any point. Adhesion and travelling power are unaffected by the position of the load.

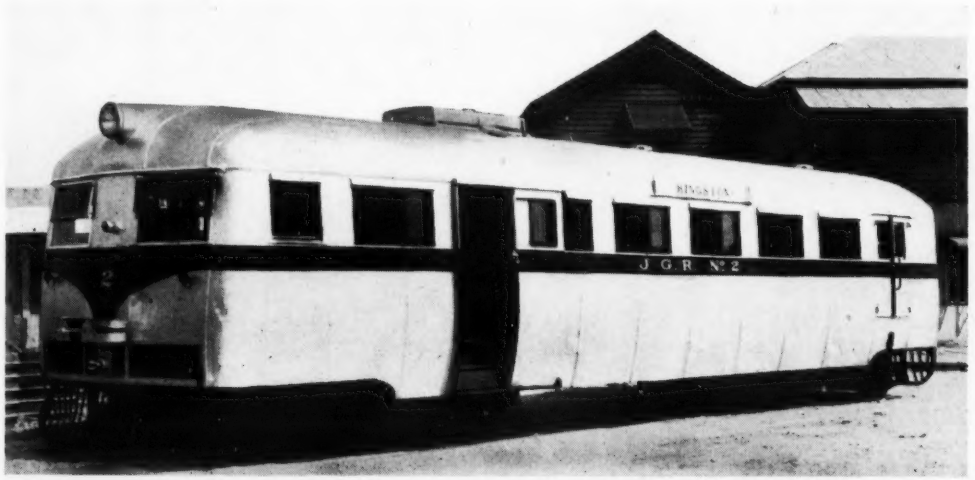
This crane, which is one of a complete range of mobile and lorry-mounted cranes of 1-6 tons capacity, is built on modern mass-production lines. The construction is largely electrically welded, and high-quality steel is used throughout. All main gears are totally enclosed, and the whole machine is finished with steel clothing, which is readily removable for access to working parts. Standard equipment includes electric starting, lighting, horn, inspection lamp and a complete kit of tools.

CONTROL OF IRON & STEEL (SCRAP).—The Ministry of Supply states that the Control of Iron & Steel (No. 36) Order, 1944 (to which reference was made in our December 15 issue) should have been described as the Control of Iron & Steel (No. 36) Scrap Order, 1944.

ELECTRIFICATION IN SWEDEN.—The Swedish Government has authorised the Railway Board to grant the Stockholm-Västerås-Bergslagens Railways a loan of kr. 12·5 million for the electrification of the Stockholm-Köping line (about 80 miles). This company recently was taken over by the State Railways, but it is operated still under the old administration. Preparatory electrification work was started last June, but more important work will begin this spring.

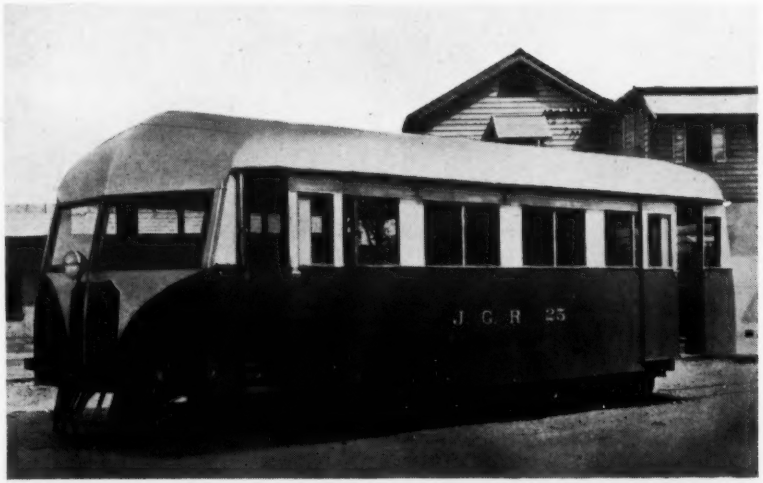
Railcar and Rolling-Stock Units on the Jamaica Government Railway

Gang trolley for use of permanent-way inspectors. Locally-built body on Wickham chassis



Diesel railcar built by D. Wickham & Co. Ltd., Ware, Hertfordshire, one of three supplied in 1939

Flat wagon with dismountable petrol tanks, which can be transferred to lorries



Petrol-driven railcar with locally-built body on U.S.A.-built chassis

"Spirit of Progress," Victorian Government Railways

Southbound streamline "Spirit of Progress," leaving Albury, N.S.W., on its daily 190½ mile non-stop run to Melbourne, which it completes in 215 min., an average speed of 53·2 m.p.h. The train is hauled by semi-streamline 3-cylinder "S" class 4-6-2 locomotive No. 300, "Matthew Flinders."

Photo] *[John Buckland*

RAILWAY NEWS SECTION

PERSONAL

Lord Royden (Chairman of the London Midland & Scottish Railway Company) has been appointed a Commander (Brother) of the Order of the Hospital of St. John of Jerusalem. Sir William Wood (President of the London Midland & Scottish Railway) and Mr. R. E. Robins (General Manager of the Kenya & Uganda Railways & Harbours) have been appointed Officers (Brothers) of the Order.

At a recent meeting of the Traffic Officers' Conference at the Irish Railway Clearing House, Dublin, Mr. H. S. Knott, Traffic Manager, Great Northern Railway (Ireland), was elected Chairman of the conference for 1945.

We regret to record the death on January 3, at the age of 77, of Sir William James Thomas, Bt., a Director of the Great Western Railway Company from 1923 until his retirement from the board in December, 1943, and formerly a Director of the Barry Railway Company.

Lord Harlech has been elected to the boards of the Midland Bank Limited and Midland Bank Executor & Trustee Co. Ltd.

We regret to record the death of Mr. J. W. Wardlaw, Chief of Transportation, Canadian National Railways.

He has been succeeded by Mr. H. H. Sparling, formerly General Superintendent, Edmonton.

Beyer, Peacock & Co. Ltd. announces the following elections to the board of directors:—Lt.-Colonel J. A. T. Barstow, D.S.O., and Mr. W. Cyril Williams, A.M.Inst.C.E., M.I.Mech.E.

We regret to record the death in Toronto on January 5, at the age of 87, of Mr. W. S. Stout, President of the Canadian Pacific Express Company.

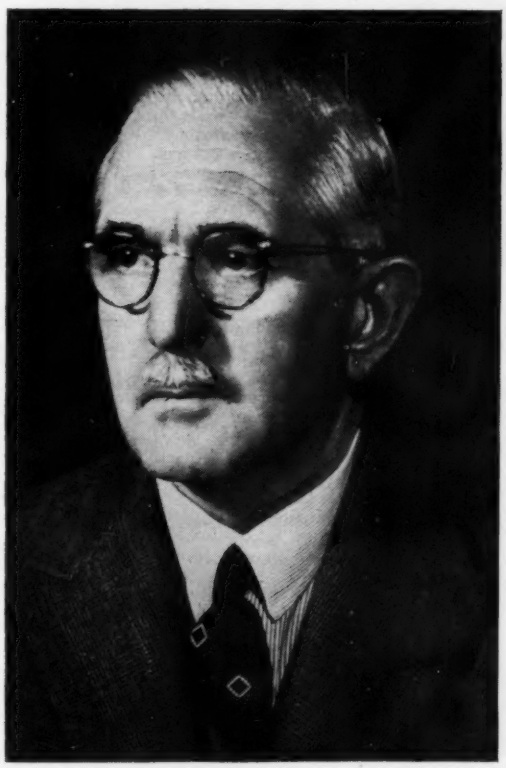
L.N.E.R. Appointment

Mr. F. G. Crabb, Goods Manager's Rates & Charges Section (Southern Area), has been appointed Head of Claims, Goods Manager's Office (Southern Area).

Mr. W. H. Taylor, General Manager of the Western Australian Government Tramways, Ferries & Electricity Supply, left Australia by air on November 1, 1944, for England and America. The primary purpose of Mr. Taylor's visit is in connection with the calling of tenders for equipment and plant for a new electric power station to be erected in the Perth metropolitan area in the near future, in respect of which he has been responsible for designs and specifications; but during his visit he will inquire into various matters, including railway electrification, the latest developments in street transport services, diesel train developments, and railway catering.

During Mr. Taylor's absence, Mr. J. C. King, Electrical Engineer, will act as Deputy General Manager.

Sir Arthur Cecil Griffin, O.B.E., B.Eng., formerly General Manager of the North Western Railway, who, as recorded in our issue of September 8 last, has been appointed Chief Commissioner of Railways, India, first went to that country in 1911, when he was posted to the North Western Railway. As an officer in the Royal Engineers Special Reserve, he was recalled to military duty and left India for active service in 1914. In 1916 he was transferred from the European to the Mesopotamian front, where he served under the Railway Directorate and was appointed a Deputy Assistant Director of Railways. In 1918 he was transferred to the War Office for work in connection with the Transportation Commission to the Peace Conference in Paris. His services were lent to the Civil Government of Mesopotamia in 1920, and he served there as Deputy-Director of Railways until June, 1924, and subsequently as Director. During his war service Sir Arthur Griffin was mentioned in dispatches; he was awarded the O.B.E. (Military) in January, 1919. He returned to India in November, 1925, and was appointed Divisional Engineer, Karachi, N.W.R.; later he was placed on special duty there in connection with the design and layout of railways in the port area. In 1930 he was appointed Principal of the Walton Training School for the staff of the N.W.R. For two periods—July-September, 1931, and April-November, 1933—he officiated as Deputy Agent of that system. In November, 1934, he was made Divisional Superintendent, Rawalpindi, and two years later was transferred to Delhi in a similar capacity. In May, 1938, he was appointed Secretary to the Railway Board (Government of India), which position he relinquished to take up that of Officiating General Manager, North Western Railway, in 1940. He later was confirmed in the last-named post, which he held up to the time of his present appointment. When Sir Arthur Griffin received his knighthood in the New Year Honours, 1943, he became the first General Manager of the N.W.R. to receive that honour during his tenure of that office.



Sir Arthur Griffin
Appointed Chief Commissioner of Railways, India

Southern Railway Appointment

The Southern Railway announces the following appointment in the Chief Electrical Engineer's Department:—

Mr. A. W. Knight to be Technical Assistant, as from January 1.

The late Mr. Henry W. Lee, who was Chairman of the Superheater Co. Ltd., Director of the Chloride Electrical Storage Co. Ltd., and formerly Managing Director of J. Stone & Co. Ltd., left £264,342.

Mr. R. W. Foot, Chairman of the Mining Association of Great Britain, has been appointed President of the Coal Utilisation Joint Council for 1945.

We regret to record the death at Berne, at the age of 48, of M. Francis Torche, Secretary-General of the Swiss Federal Railways since 1940.

Mr. George Augustus Roderick Trimming, Deputy Director-General, Machine Tool Control, Directorate-General of Munitions Production, Department of Supply, Government of India, has been made a C.I.E. in the New Year Honours List. Mr. Trimming is a former Chief Mechanical Engineer of the East Indian Railway, who was later Chief Controller of Standards, Indian Railway Board.

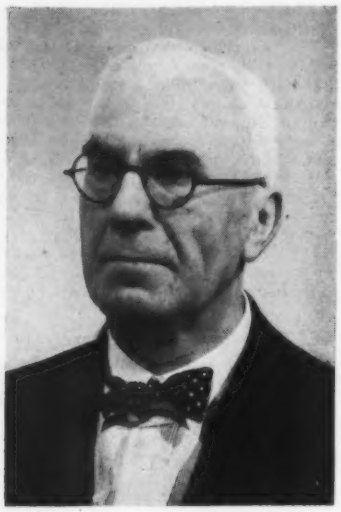
The research activities of the United Steel Cos. Ltd., including those relating to metallurgy, applied mechanics, and manufacturing processes, are to be unified and co-ordinated under the control of Mr. Frank H. Saniter, B.Sc., who has been appointed Director of Research to the company. Mr. Saniter is the son of the late Mr. E. H. Saniter, who was Chief Metallurgist to the United Steel Cos. Ltd., and who was awarded the Bessemer Gold Medal in 1910.

Institution of Mechanical Engineers

Among those recently elected to associate membership of the Institution of Mechanical Engineers are Messrs. E. P. Barker, Mechanical Department, South African Railways & Harbours, Germiston; E. R. J. Barnes, C.M.E. Department, Southern Railway, Waterloo; and J. M. MacIntosh, L.M.S.R., Derby.

XUM

Mr. W. R. Charlton, Head of Passenger Train Section, Office of the Superintendent of the Line, Great Western Rail-



Mr. W. R. Charlton

Who has retired from the position of Head of Passenger Train Section, S.O.L. Office, G.W.R.

way, retired on December 31. He joined the railway service in 1900 in the Time Table & Special Traffic Section of the Office of the Superintendent of the Line (then Mr. T. I. Allen) under the late Mr. J. V. Williams, at that time Chief Time Table & Passenger Train Clerk. Mr. Charlton has spent the whole of his railway career in that office and served under seven Superintendents of the Line. He was appointed Chief Time Table Clerk in 1929. In the course of 44 years' timetable, train operating and special traffic work, Mr. Charlton became closely associated with no less than 59 divisional timetable and train clerks in the specialised work of timetable compilation and revisions and train operating and special traffic working.

Following his retirement, the responsibilities of Mr. Charlton have been divided. Mr. P. Spang has been appointed to take charge of Time Tables & Special Traffic, and Mr. A. Greig has been appointed in charge of Passenger Train Working.

The late Mr. Norman B. Dickson, who was a Director of Associated Electrical Industries Limited, Central Africa Railway Co. Ltd., Nyasaland Railways Limited, Great Western of Brazil Railway Co. Ltd., Leopoldina Railway Co. Ltd., Taltal Railway Co. Ltd., United Railways of the Havana & Regla Warehouses Limited, and other companies, left £85,307.

Mr. G. L. Darbyshire (Vice-President, L.M.S.R.) has been appointed a Director of the Birmingham & Midland Motor Omnibus Co. Ltd., in place of Mr. H. V. Mosley (lately Chief Executive Officer for New Works & Parliamentary Business, L.M.S.R.), who has resigned.

Mr. F. A. Pope (Chief Commercial Manager, L.M.S.R.) has been appointed a Director of the Trent Motor Traction Co. Ltd., in place of Mr. H. V. Mosley, who has resigned.

The New Year Honours List

Among the New Year honours announced in the second list were the following of transport and industrial interest:—

O.B.E. (Civil Division)

Alderman Alfred Baynton, General Manager, East Kent Road Car Co. Ltd. For services to civil defence.

Mr. William John England, Superintendent of Operation, Southern Railway.

Mr. David Ewing, Chief Officer, ss. *Empress of Australia*, Canadian Pacific Steamships Limited.

Captain Harvey Hardinge Golding, Master, ss. *Isle of Jersey*, Southern Railway Company.

Mr. Fred Berry Greenwood, M.Inst.C.E., Chief Engineer, Manchester Ship Canal Company.

Mr. William Thomas James, Director of a number of road passenger transport companies associated with the British Electric Traction Co. Ltd.

Captain Charles Waine Sanderson, Master, ss. *St. Andrew*, Great Western Railway Company.

Mr. Douglas Williamson, Works Superintendent, Horwich, London Midland & Scottish Railway.

M.B.E. (Civil Division)

Mr. Henry Rowland Angell, Superintendent, Rectifier Department, Westinghouse Brake & Signal Co. Ltd.

Mr. Frank Clark, Superintendent, British Oxygen Co. Ltd.

Mr. Holland Henry Bencroft Dyer, Radio Officer, ss. *St. Andrew*, Great Western Railway Company.

Captain Horatio Herbert Fox, Master, ss. *Dearne*, London Midland & Scottish Railway Company.

Major James Alexander Wilson Galloway, Deputy Manager, Harland & Wolff Limited.

Mr. Frank William Goring, Stationmaster, Kings Cross, London & North Eastern Railway.

Mr. John William Hallsworth, Works Manager of the steel foundries, Thos. Firth & John Brown Limited.

Mr. William Arthur Henley, Production Manager, Tubes Limited.

Mr. Frederick Osgood Hickling, M.I.A.E., Technical Manager, Ransome & Marles Bearing Co. Ltd.

Mr. Hubert John Hoskins, District Goods Manager, London, Great Western Railway.

Mr. Tom Hunton, Assistant in Charge, Outdoor Carriage & Wagon Repairing Depots, Southern Railway.

Mr. George Morris Johnston, District Superintendent, Edinburgh, London & North Eastern Railway.

Mr. Alexander Graham Liston, Assistant Marine Engineer, Southampton, Southern Railway.

Mr. Alfred William Maby, Senior Executive Officer, Ministry of War Transport.

Mr. Harold Mayo, A.M.Inst.T., Chief Assistant to the Regional Transport Commissioner, North Midland Region, Ministry of War Transport.

Mr. Hugh Montgomery, Marine Superintendent, Stranraer Harbour, London Midland & Scottish Railway.

Mr. Frank Herbert Moorman, Works Manager, Stothert & Pitt Limited.

Mr. Frederick William Morris, Planning Engineer, Reynolds Tube Co. Ltd.

Mr. Arthur George Pearce, member of the scientific staff, research laboratories, General Electric Co. Ltd.

Mr. Harold Victor Riley, Traffic Manager, Aire & Calder Navigation.

Mr. Harold Savage, New Works Assistant to Chief Engineer, Great Western Railway.

Mr. Alexander Sanders Leith Thomson, Dock Superintendent, Garston, London Midland & Scottish Railway.

Mr. Kenneth McIntosh Whyte, Production Manager (Bradford Factories), General Electric Co. Ltd.

Mr. James Wooldridge, Cable Works Manager, Johnson & Phillips Limited.

Mr. Rowland Henry George Young, Personal Assistant & Supervising Officer to Director of Transportation, War Office.

Mr. R. J. M. Inglis, Divisional General Manager, Scottish Area, L.N.E.R., who, as recorded in our December 15 issue, has been released temporarily from his duties in connection with that post, has been invited by the Government to undertake important work in connection with railway, road, and inland waterway transport and ports in Central Europe.

Captain F. Greenop, Marine Representative, Dover & Folkestone, Southern Railway, who has retired, was formerly with the Royal Mail Steam Packet Company, and entered S.E.C.R. service in 1913 as Chief Officer; he became Master after nine months. During the last war he was largely employed in piloting ships in and out of Dover and Folkestone; he also went to Calais and Boulogne to look after the company's ships and bring them back at the end of the war. In 1922, Captain Greenop went to Richborough as O.C. Marine. Between 1923 and 1939, he was Master, at varying periods, of the *Maid of Kent*, *Maid of Orleans*, *Isle of Thanet*, *Engadine*, *Riviera*, and other Southern Railway ships. In 1930, he took over the position of Dockmaster at Dover, and in 1935 he was decorated by the King of the Belgians. Captain Greenop was appointed Marine Representative, Dover & Folkestone, in August, 1941.

Captain F. Greenop

Marine Representative, Dover & Folkestone, Southern Railway, 1941-44

TRANSPORT SERVICES AND THE WAR—276

Rail Fare Concession

Wives of Servicemen may now travel by rail at reduced fares if they are attending hospital or taking their children to hospital for treatment. These visits will not affect their quota of ordinary journeys at reduced fares.

Lighting of Number-Plates

The wartime restrictions on rear lights for motor vehicles having been relaxed, rear number-plates should again be illuminated. Some rear lamps fitted during the war are not adapted to illuminate the number-plates, and, to give time for their adjustment, the Minister of War Transport has made the Road Vehicles (Registration & Licencing) (Amendment) Provisional Regulations, 1944, suspending the requirement until March 29, 1945.

Furniture Removals by Road

To relieve hardship to the public, furniture removals by road will be allowed in future by the Ministry of War Transport up to 120 miles without restriction, instead of up to 60 miles, as heretofore. For necessary journeys over longer distances, Regional Transport Commissioners will issue permits for road transport where a reasonable rail service is not available, or the difference in cost between road and rail would involve the applicant in financial hardship. As in the past, those whose homes are damaged by enemy action may move their furniture any distance by road without a permit.

Emergency Foodstuff Dispersal

Since 1940 the whole of the 10-acre storage space of an 8-storey goods warehouse in Sheffield owned by the L.N.E.R. has been filled with 20,000 tons of food held for emergency. This is representative of the vast storage facilities that British railways placed at the disposal of the Ministry of Food. Now that such arrangements are no longer necessary, the stocks are being dispersed. This Sheffield store, for example, recently dispatched 4,000 sacks of Canadian flour, 48,000 tins of condensed milk, and 260 tons of beans to liberated Europe. A train of 40 box wagons was marshalled to form the special train from Sheffield to Grimsby, and given a Number 1 Priority.

Ration Packs for the Forces

The G.W.R. has carried to Army Reserve Depots 46,000 tons of ration packs of various types, ranging from large compo. packs for the maintenance of parties landing on invasion beaches to smaller type containing emergency rations for men in advanced positions for use when normal supply and feeding arrangements are not available. A typical large pack contains 3 tins of bacon; a tin of biscuits; 2 tins of peas; 2 tins of potatoes; 3 date puddings; 2 tins of pea soup; 10 tins of steak and kidney, salmon, corned beef, or luncheon beef; a tin of matches and salt; a tin of sweets; cheese; bar soap; a tin of jam; a tin of margarine; 100 cigarettes; 3 tins of tea, milk, and sugar powder; and 2 chocolate bars. It is sufficient for 14 men for one day.

French Inland Shipping

The reconditioning of the canals and other inland waterways of France is stated to be making good progress. Canal communication from the coal region in Northern France to Paris was reopened by the nd of November. On the other hand, the position in a number of important maritime ports is described as catastrophic. Of the big ports, only Bordeaux is said to be comparatively free from heavy damage. In so far as ports and their equipment have been reconditioned, if only temporarily and mainly through the collaboration of Allied Forces and organisations, they have been placed in service almost exclusively for military requirements. The resumption of civilian imports through some French ports is expected in the spring of this year.

French Rail Fare Increases

At a meeting of the French cabinet on January 3, it was decided to increase French railway fares by 40 per cent., and goods traffic rates by 70 per cent.

London-Paris Service

Arrangements are being made by the Ministry of War Transport in co-operation with the French Authorities for opening a London-Paris sea-rail passenger service on January 15. Passages for civilians will be reserved solely for: *A*—Persons whose journeys are certified by a government department to be in the national interest; and *B*—Compassionate cases where the journey is of immediate urgency.

Exit permits and French visas will be required. Passages will be allocated only through the certifying departments to persons in class *A* and through the Passport & Permit Office to persons in class *B*. Exit permits cannot be granted for travel to the military zones unless military entry permits are first obtained. Persons in class *A* should approach the Government Department interested in the object of their journey (*e.g.*, business men should approach the Department of Overseas Trade). Persons in class *B* should apply to the Passport & Permit Office.

Spanish Rail Fare Increases

According to a Reuters message dated January 4, the Spanish cabinet has approved increases in railway rates to take effect immediately. Passenger fares are increased by 25 per cent.; staple goods rates by 20 per cent.; and other goods rates by 30 per cent. Coal, cement, and fertilisers are excluded from the increases.

Aid to Russia through Persia

It is reported that military traffic for Russia on the Persian State Railways has been so increased since 1941 that the 2,500,000th ton was transported in the third week of December last.

Abyssinian Railways in War

Earl de la Warr, the head of the British delegation to Ethiopia, who returned from Abyssinia to Cairo on December 21, has given some details of the newly-concluded two-year agreement between Great Britain and Ethiopia. The Djibouti-Addis Ababa Railway is to be operated by the Ethiopian authorities, with a guarantee by Ethiopia that Allied military and Middle East supply centre requirements shall have certain priorities. The British military administration is handing over the running of the Djibouti-Addis Ababa Railway to Ethiopia, but the Ethiopian Government has undertaken to recognise the legal rights of the Franco-Ethiopian owning company.

Defence Works in New South Wales

During the financial year ended June 30, 1944, in respect of which the Annual Report of the Commissioner for Railways has been issued recently, the New South Wales Government Railways completed and brought into use a large number of railway works for Australian and Allied Forces and Commonwealth Departments, which had been begun in the previous year. Because of the improvement in the war situation, there was a decline in the number of new works undertaken, but nevertheless, many proposals were investigated in co-operation with representatives of the Services and the Allied Works Council, and work on some was begun. The advice of the departmental officers was sought and accepted as to available sites for several large projects, and extensive areas of railway land were made available to the Commonwealth and other authorities for the erection of stores and depots for various purposes. Negotiations involved close collaboration between administrative and technical officers of the Department and the representatives of the authorities concerned, and these were conducted in an atmosphere of harmoney and goodwill on both sides.

The resources of the Department were made available for the construction of extensive rail facilities for Army purposes in an adjoining State, and also for the design and construction of railway track for internal services in a large undertaking which will not be connected with the State railway system.

Some of the L.M.S.R. War Work

Now that details are no longer forbidden by the requirements of Security, the L.M.S.R. has published some interesting particulars, in its wartime newsletter *Carry On*, concerning some of the unusual recent activities of the company's workshops. For example, it has now been recorded that the 44,000 workers in the seven L.M.S.R. workshops have been building tanks and guns and aeroplanes for the fighting lines as well as maintaining and building locomotives and rolling stock. The idea was mooted at the time of Munich, when craftsmen and factories were scarce and labour unskilled. L.M.S.R. men switched almost overnight to building tanks—a fine example of adaptability. Moreover, as in most other war work undertaken, the L.M.S.R. men taught themselves without the guiding hand of outside experts. It takes nearly as long to build a tank as it does to build a locomotive. The Matilda tank, for instance, required 23,767 man hours and 5,784 jigs, dies, gauges, and templates, against 33,000 man hours for a 2-8-0 goods tender engine. During the first three years of war the L.M.S.R. built 642 tanks—Cruisers, Centaurs, Matildas, and Covenanters.

At the outbreak of war the L.M.S.R. had already begun production of Hawker Hurricane wings. All the 3,000 tools for their manufacture were designed and many made by the staff. In August, 1940, at the beginning of the Battle of Britain, ten pairs a week were being turned out. By 1942 the company had reached 20 pairs a week, and at one time the L.M.S.R. had produced 40 per cent. of all Hurricane wings made. Altogether, up to March, 1944, the company had produced 699 pairs of Typhoon wings, 2,669 pairs for Hurricanes, 144 spare sections of Roc aircraft, and 160 pairs of Horsa glider wings. It has also put hundreds of battle-damaged aircraft into the sky again. Up to 170 instruments of damaged planes are examined and tested every week. As many as 10,000 items of its 84,000 parts, and 20,000 man hours, may be required to repair a single Whitley. A pair of Horsa glider wings takes 3,167 man hours to construct. All this aircraft work has been done by the railway staff without the aid of any outside administrative help at all.

Thousands of rifle butts were made in one works on spindle machines. The L.M.S.R. men made their own jigs and other tools for this job, which involved, for each butt, 42 operations at the fore end and 30 at the butt end. The highly-specialised job of gun mountings had also been a preoccupation of L.M.S.R. workshops. They have built 250 17-pounder guns and supplied 4,500 components. These mountings were the foremost to be produced in the country and the last carriage left the works two weeks before delivery date. Besides

this, 500 carriages for 25-pounder field guns were assembled at the rate of 50 a month; 23 of last war's 12-in. howitzers on four-wheel bogie rail trucks were renovated; 51 carriages and limbers for 9·2 howitzer bodies and 45 carriages for howitzer beds were constructed; and 13,000 gun and aperture sights for American Lewis guns were turned out.

There is a cartridge case reforming depot at one of the North Country works, staffed by women with a sprinkling of men, where reformed cartridge cases are turned out in vast numbers. In a week 460 women and 27 men have reformed up to 40,000 of various sizes. The total output from this depot alone is approaching the 4 million mark. Another section of this works is machining 22 mm. shells from solid lead-bearing steel; 106 women and 24 men are producing 70,000 a week. By March, 1944, they had already made more than 5 million. Half a million 4·2 shells, 88,500 25-pounder shells, and 166,000 60-pounder shells, are three other of many records set up.

The distinction of making the first catapault trolley for the Navy goes to an L.M.S.R. works. They have produced 52 complete trollies and many sets of parts. Some 2,000 shields of bullet-proof steel for the protection (from low-flying aircraft) of A.A. men on ships were supplied. Also, 8,442 assault boats were made by the L.M.S.R. carriage-building craftsmen.

A few days before war broke out instructions had been received to prepare and assemble ambulance trains, for which arrangements had been made some time previously. Six ambulance trains were handed over to the Military Authorities in less than three weeks. Since then, 33 other ambulance trains have been prepared at various intervals. Also, 15 casualty evacuation trains were completed, and despatched to a pre-arranged destination by September 5, 1939.

A spectacular feat of the workshops has been the production of bridges. So true was the designing of these that parts were made in the different L.M.S.R. workshops throughout the country and assembled with precision into sections at a central shop. In all, 120 sets of trestle bridges, 8 " through " type, 8 " deck " type, 12 sets of unit-construction bridges, 6 sets of " V " type trestles, and hundreds of thousands of parts have been made.

When France fell, 12 armoured trains were commissioned hurriedly from one carriage and wagon works. There was no time to requisition supplies, so they were manufactured with what material was available on the spot and delivered in a few days. Another carriage and wagon works had the task of breaking down 500 20-ton covered goods vans of French design and packing them for shipment. The making of the packing cases used 150 miles of timber, 20 miles of hoop iron, 2 miles of canvas strips, and 4,500 sq. ft. of Bitumastic paper. In six weeks eight vans were packed. Three days later 24 vans were ready. The whole job took just six months.

By concentrating two thirds of their energies on railway work and one third on Government contracts, and working a total of 20 million man hours more per annum than before the war, the L.M.S.R. effort in the two most vital elements of modern war —transport and armaments—has been fulfilled.

Washington Union Station Wartime Traffic

Station staff increased from 154 1,736

The Washington Terminal Railroad handles passenger trains of the Baltimore & Ohio; the Chesapeake & Ohio; the Pennsylvania; the Richmond, Fredericksburg & Potomac; and the Southern Railways; as well as through trains from numerous other railways which pass through the terminal over the lines mentioned. All these trains use the Washington Terminal Railroad in reaching the Union Station. This line has a total trackage of 52 miles. The Union Station has been called upon to handle enormously increased traffics as a result of the war, and especially since the U.S.A. became a belligerent at the time of the attack on Pearl Harbour in December, 1941. There is close co-operation between employees of the Terminal Company, the Military Police, and the Shore Patrol, and every effort is made to promote the comfort and welfare of members of the Armed Forces who constitute the bulk of the travel passing in and out of this busy terminal, which, during the year 1943, recorded operations and revenues greater than those of 78 Class I railways in the United States. At present, between 140,000 and 175,000 persons move through the station daily, using more than 300 trains. Approximately 400,000 tickets are sold there every month, with total revenues close to three million dollars. More than 117,000 passenger carriages and locomotives have been handled in this terminal in a single month.

Not only has the number of passengers using the station increased remarkably, but passengers now stay longer in the station on the average than heretofore. Formerly, the predominant percentage of the passengers consisted of business men or tourists, few of whom lingered at the station. Today, Service men and their families, war workers, and casual travellers of all sorts fill the station 24 hours a day. As a result, it has been necessary to enlarge the public facilities materially. The restaurant and lunch room have been modernised and air-conditioned, and their seating capacity has been increased from 232 to 310. The washrooms for men and women have been practically doubled in capacity. The barber shop has been modernised, air-conditioned and enlarged. An additional public telephone exchange has been established in the concourse with 16 booths, and the number of public telephone boxes has been increased from 15 to 45. The entire lighting system of the station has been modernised. Fluorescent units have been installed on the back of the benches in the waiting room, thus improving the reading range. The overhead lighting fixtures, installed in light galleries, have been modernised and a public address (loud-speaker) system installed.

The normal capacity of the parcel room is 1,800 packages. To amplify the facility, an additional parcel room has been arranged in the concourse, with a capacity of 2,500 packages, while the number of self-service parcel lockers in the concourse has been increased from 508 to 1,065. A short concourse has been constructed adjacent to the parcel room to give further connection between the ticket lobby and the main concourse. A former mail distribution station at the west end of the concourse was abandoned, releasing 5,370 sq. ft. of additional space for passenger use. Three escalators have been installed between the upper and lower train levels, to facilitate handling of passengers using the lower level.

In December, 1941, when the station was already busier than it had been for some time, there were 17 employees in the reservation bureau; today there are 174. The private branch telephone exchange has been increased from 6 switchboard positions to 13, and from 30 trunk lines to 100. The reservation bureau diagram service has been increased from 24 to 78 positions. The information service has been similarly expanded. There are now 124 information clerks, compared to 26 in December, 1941. The information service includes a large booth in the main waiting room where a large staff of clerks is on duty 24 hours a day. One of the wartime characteristics of the Washington Terminal is that it is well patronised at all hours of the day and night. Another information booth is situated in the concourse primarily for supplying general as well as train information to the Services.

The ticket selling force has been increased from 31 employees in December, 1941, to 140 now, and the entire ticket selling plan has been revised to cope with the tremendous volume of such work now necessary. The normal number of ticket windows in the terminal is 15, whereas now, during peak periods, tickets are sold at 65 points. To expedite the sale of tickets, selected ticket windows have been designated for handling certain specified transactions. For example, in view of the large volume of tickets issued on government transport requests, certain ticket windows, identified by adequate signs, handle such sale only. Other windows are reserved for advance Pullman bookings. A large group of windows has been set aside for the sale of coach tickets only, and other windows are for the sale of coach tickets to specified points to which there is normally a heavy traffic. Ticket office employees, designated " floor-walkers," are assigned to duty at the various ticket selling locations to answer enquiries and direct intending passengers. In December, 1941, there were 26 information clerks and 17 reservation clerks; today, there are 124 information clerks and 174 reservation clerks. Checking transactions at the baggage counter averaged 14,416 a month in 1939. They averaged 50,935 a month in 1943 and are higher now.

The Washington Terminal was among the first railways to increase its staff of women. Before Pearl Harbour, approximately 65 women were employed, mostly in clerical and similar occupations. Now, 1,260 women are employed, not only in the office but in the engine house and classification yards, on baggage and mail service, and for track maintenance.

As thousands of members of the Armed Forces pass through the station, the President's waiting room has been converted into a U.S.O. lounge, which is used by some 5,000 daily. This lounge is conducted by the Washington Travellers Aid, under the supervision of a committee of operations of which the manager of the Terminal Company is chairman. This lounge is open 24 hours a day and is well patronised at all hours of the day and night. A large canteen is also located in the station concourse for exclusive use of those in the Services. This facility is very popular, and is operated on a non-profit basis. During 1943, the canteen was used by 21,791,970 Service personnel, and 1,561,091 used the Servicemen's lounge and checked their luggage, totalling 499,000 pieces, without charge.

The Siam-Burma Railway Tragedy

A wartime railway link which has probably proved of very considerable importance to the Japanese in connection with their activities in Burma, is that linking the Royal State Railways of Siam with the Burma Railways. It is a metre-gauge line, as are both the systems it joins, and extends from Ban Pong (near Bangkok) to Thanbyuzayat (near Moulmein). The principal information concerning this railway has come from escaped Allied prisoners, and all that had then been made public was summarised in an article which we published in our issue of November 26, 1943, page 543.

Since that time considerably more information has come to light, and a tragic story has been told, by some 60 prisoners who survived from a sunken transport ship. These men reached Singapore early in July, 1944, and in due course embarked for Japan. The ship was torpedoed, and the survivors were rescued by the United States Navy from the sea in September last. It is the information received from the British prisoners which has now been collated. From this it appears that, after the Fall of Singapore in February, 1942, all United Kingdom and Australian prisoners captured in Malaya and Singapore were concentrated in camps on Singapore Island. In October, 1942, most of the United Kingdom prisoners were moved to Siam in metal cattle trucks in which they could not lie down for the five days and nights of the journey, but slept leaning against piles of equipment or against one another. The Japanese Military Authorities decided to construct the railway and road between Siam and Burma with all speed, and regardless of the conditions under which the prisoners worked, and of the cost in human life.

Speaking in the House of Commons on December 19, Sir James Grigg, the Secretary of State for War, said it was difficult to speak with any certainty of the numbers involved, but the best estimate it had been possible to make indicated that not fewer than 60,000 white persons and probably a much higher number worked on the railway and road. Of these the great majority was from the United Kingdom or Australia; in addition, many thousands of Asiatics were used and the death rate among them was almost certainly heavier than among the white men. An indication of mortality is given by the fact that the Japanese themselves have erected a memorial to approximately 25,000 men who had died while at work on the construction of the railway and road. Of these, fewer than 1,000 were Japanese, and the remainder were British, Australian, and Dutch.

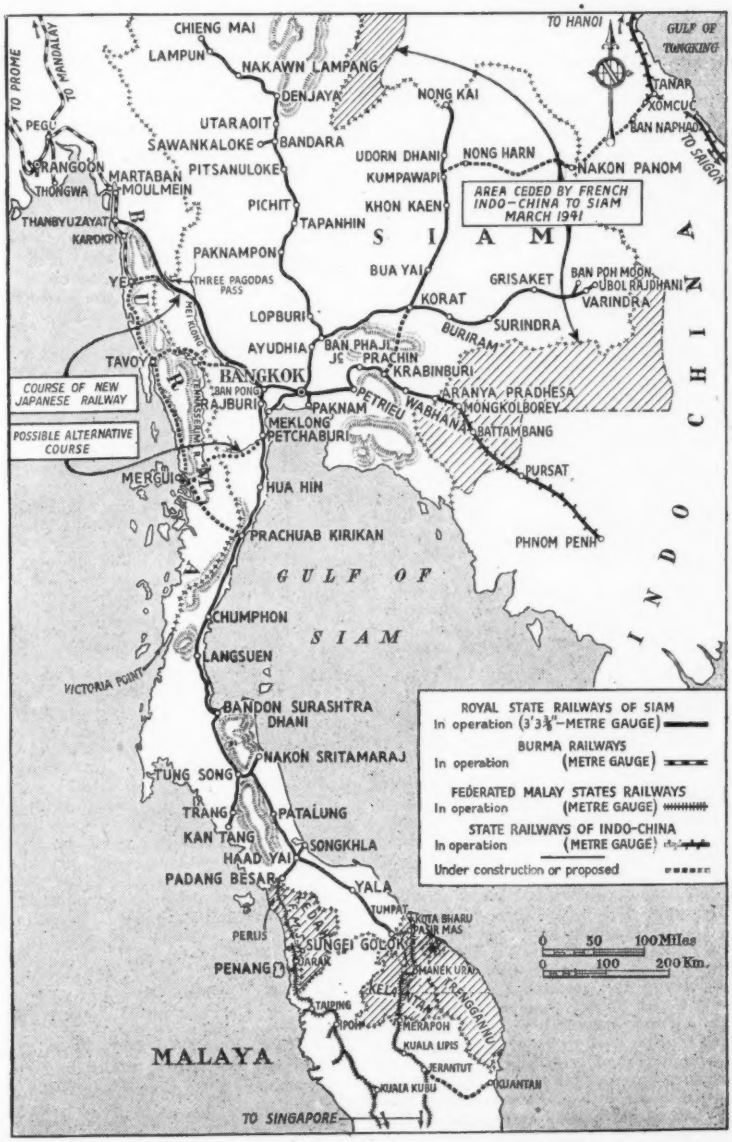
The Allied prisoners who were compelled to engage in the work, as slave labour, were marched through the jungle on foot, on their arrival in Siam, and in many cases had to proceed up to 50 miles along tracks through disease-infected and insect-ridden jungle. After the jungle had been cleared, construction work on the railway and the road proceeded under increasing pressure from the Japanese, who were determined to finish it as quickly as possible. Men were compelled to work if they could move at all, and in some cases sick men were even carried on stretchers from camp to work.

At first the hours of work seem to have been what the British War Office describes as not unreasonable, but by April, 1943, task work had been introduced, and each man was required to move 1 cu. yd. of earth and rock in a day. Later, this was increased to 1½ cu. yd. and not infrequently the task would take 14-15 hr. At first, officers were employed only in camps in supervision or on fatigues, but in February, 1943, they were formed into working parties for the harder and more menial tasks.

Worn out clothing was not replaced and the men were soon reduced to a state of nakedness. Food supplies appear to have been pitifully inadequate. The normal Japanese disciplinary code, which involves severe beating for even the most trivial offences, seems to have been applied to officers and other ranks at all times without relaxation. In addition, other forms of greater brutality were not infrequent, and there were cases of torture and killing. Inevitably, much of the work was dangerous and the rate of injury was high.

The railway is stated to have been completed in October, 1943, and between then and the early part of 1944 all prisoners of war appear to have been withdrawn from the railway to large rest camps in the neighbourhood of Bangkok, excepting for a thousand or so retained for maintenance work on the railway. Conditions then improved substantially, though they were still below any normal British standard.

The foregoing information is collated from a statement made in the House of Commons on December 19 by Sir James Grigg, and from an amplifying statement issued on the same date by the British War Office.



Sketch map of the peninsula south of China, comprising eastern Burma, Siam, part of French Indo-China, and Malaya, in which the Japanese are reported to be developing both rail and road transport facilities. The Siam-Burma link was built by Allied prisoners of war under slave conditions.

Buenos Ayres & Pacific Railway Co. Ltd.

The ordinary general meeting of the Buenos Ayres & Pacific Railway Co. Ltd. was held on December 20 at Winchester House, Old Broad Street, London, E.C.2. Mr. J. A. Goudge, Chairman of the company, presided.

The Chairman in the course of his address said that the company had had a difficult year. It had received no imported materials from Europe for over three years, and all the necessary metals and consumable stores had been in short supply. For two years it had not been able to get similar materials from the United States, and the fuel question had been one of immense difficulty. It was no exaggeration to say that the maintenance of traffic had been almost impossible.

Fortunately, the company had been in a position to make branch lines into some timber-bearing lands in the west of Argentina. It was making about five branches, each some 20 miles long, for collecting firewood. That had not been enough, and the staff had been hard put to it to make do with whatever they had been able to obtain in the Argentine itself. They were all greatly indebted to the staff and management for the way in which they had maintained the services and the lines, which even today were the very best lines in the whole of South America.

The Chairman paid a tribute to Sir Montague Eddy for the work he had done in negotiating the recent arrangement with the Argentine Government under which it was possible to look forward to better relations with the Government.

Continuing, the Chairman said that he was sure that at this time there was an agreed policy of co-operation between the British owned Argentine railways, and he was quite sure that the same co-operation was absolutely essential if they were to maintain their position. He suggested that some representative body, not only in London, but in Buenos Aires should represent the interests of all railway investors in the Argentine.

Sir Montague Eddy addressed the meeting and gave an account of his negotiations with the Argentine Government.

The report and accounts were adopted.

Entre Rios Railways Co. Ltd.

The ordinary general meeting of the Entre Rios Railways Co. Ltd. was held in London on December 21. Mr. B. H. Binder, F.C.A., Chairman of the company, presided.

The Chairman, in the course of his speech, paid tribute to the late Sir Follett Holt, whose death had been a grievous loss to the company with which he had been associated since 1900. His intimate knowledge of Argentina and its railways had been of the greatest value, not only to the Entre Rios Railways Co Ltd., but to all British-Argentine railway interests.

He was pleased to be able to say that the company had been able to pay off all arrears of interest on the 4 per cent. debentures, and it was reasonable to hope that future half-yearly payments on this stock would be met as they became due. Should this hope be realised the company could, as funds became available, commence payments on account of arrears of debenture interest, accrued and accruing under the moratorium on the 5 per cent. debentures and the 5 per cent. consolidated debenture stock.

The Chairman went on to recount certain of the difficulties relating to British-owned Argentine railways which had arisen and which had culminated in the decision of Sir Montague Eddy to visit Buenos Aires. He gave a summary of the results of Sir Montague Eddy's mission, which were the subject of a statement by Sir Montague Eddy at the Buenos Ayres Great Southern Railways meeting, reported at length in our issue of December 29. He offered his congratulations to Sir Montague Eddy on the satisfactory conclusion of lengthy negotiations on behalf of the British-owned companies.

As to prospects, the latest information was contained in the following cable recently received from the General Manager: "Wheat and linseed harvests are poor but considerable tonnage has still to be transported from previous harvest. Livestock and grazing lands are in good condition. No falling off in present traffics is anticipated as the demand for wagons continues to exceed available supply.'

The report and acounts were adopted.

Trans-Zambesia Railway Co. Ltd.

The annual general meeting of the Trans-Zambesia Railway Co. Ltd. was held on December 21 in London. The Hon. M. W. Elphinstone presided in the absence on service of Mr. Vivian L. Oury, the Chairman.

The Chairman in the course of his statement, circulated with the report and accounts, said that on July 18, 1942, the sovereign powers of the Companhia de Moçambique over the territory in which the railway of the company operated, had reverted to the Portuguese State. The Portuguese Government had expressed the wish to be represented on the board of the company, and, the Companhia de Moçambique having consented to the modification of its right to appoint half the members of the board, including the Chairman, it was proposed, with the approval of the British and Portuguese Governments, that the memorandum and articles of association of the company should be amended so that the Companhia de Moçambique should have the right to appoint two directors of the company (one the Chairman), the Portuguese Government two directors, the Nyasaland Government two directors, and Nyasaland Railways Limited one director.

Meanwhile, the Comphania de Moçambique having withdrawn the appointment of Admiral de Azevedo Coutinho as one of its representatives, the board, making use of the powers contained in the existing articles of association appointed at the request of the Portuguese Government, Admiral de Azevedo Coutinho, and Lt.-Colonel Monteiro de Amaral, and, at the request of the Nyasaland Government, Mr. C. E. Rooke directors of the company. The Nyasaland Government already had one representative on the board, Brigadier-General Hammond, and Nyasaland Railways Limited had its representative in its Chairman, Mr. Codrington.

It was a pleasure to record that relations with the officers of Government were most cordial, and full recognition was given to the many courtesies received from his Excellency the Governor, Dr. Sousa Pinto. The railway fiscalisation staff, under the supervision of the Director of Ports & Railways, Lourenco Marques, had been very helpful and always willing to assist, and, as in the past, friendly co-operation and assistance from the Beira Railway had been received.

The report and accounts were adopted.

G.W.R. Ambulance Work

Ambulance work has continued successfully to be maintained on the Great Western Railway during the past session, during which 5,517 members of the staff passed first-aid examinations under the St. John Ambulance Association; 116 were recruits to the movement.

South Wales Docks Division again has won the Athlone Bowl, awarded to the division gaining the highest percentage of new members in proportion to the total number of staff employed, with a percentage of 0·37. The runners-up are London "A" Division, with a percentage of 0·28.

Many reports of exceptionally efficient first aid rendered by the staff have been received, and awards have been made as follow:—

Gold Medal: Mr. George S. Johns, Yard Foreman, Truro.

Silver Medal: Mr. Stanley W. E. Salter, Goods Guard, Tavistock Jnnction.

Bronze Medals: Messrs. Samuel J. Milton, Fitter, Laira; and James R. Butt, Sub-Ganger, Tiverton.

Certificates: Messrs. Alexander B. Cornish, Inspector, Rogerstone; James E. Dring, Signalman, Ledbury; Charles E. T. Winsor, Porter-Signalman, Cornwood; John F. Whittington, Signalman, Hereford (Barton); and Frederick W. Dibble, Clerk, Taunton.

The following gold efficiency awards were gained during the session:—

15-year gold medals ... 143	30-year gold bars ... 42
20-year gold bars ... 186	35-year gold bars ... 10
25-year gold medals ... 74	40-year gold bars ... 2

The services of Mr. H. Adams Clarke, Chief Staff & Establishment officer, G.W.R., who is Chairman of the Central Ambulance Committee and Divisional Ambulance Secretaries' Conference, have received further recognition from the St. John Ambulance Association, and he has been promoted to the grade of Officer (Brother). Mr. H. J. Peacock, Assistant Superintendent of the Line, also has been admitted to the Order in the same grade on representations made by the Priory for Wales. The following members of the staff also have received recognition from the Order for outstanding services to the movement over a long period of years:—

Officer (Brother)

Mr. L. G. Bretsch, Clerk, Chief Mechanical Engineer's Department, Swindon (Divisional Secretary, Swindon Division).

Serving Brothers

Messrs. W. R. Barnes, Signalman, Newbury; F. Wise, Signalman, Kidlington; A. C. Shaw, Coachbody Maker, Swindon; R. T. Morris, Clerk, Hereford (Joint); and B. Board, Clerk, Divisional Superintendent's Office, Cardiff (Divisional Secretary, Cardiff Division).

Miss S. Twigg, Superintendent Health Visitor for the Borough of Neath, has been admitted to the Order in the grade of Serving Sister on the recommendation of the G.W.R. Centre.

NUTRITION AND ITS APPLICATIONS TO LARGE-SCALE CATERING.—Professor S. J. Cowell, M.B., F.R.C.P., M.R.C.S., Professor of Dietetics in the University of London, has agreed to give a course of ten lectures on "Nutrition and its Applications to Large-Scale Catering" on Fridays, at 3 p.m. at the Royal Society of Arts Library, John Adam Street, Adelphi, W.C.2, beginning on January 19. The lectures are intended primarily for members of the National Society of Caterers to Industry. The fee for the course is two guineas, and requests for tickets should be sent to the Secretary, National Society of Caterers to Industry, 83, Pall Mall, London, S.W.1.

XUM

Staff and Labour Matters

Catering Wages Board

The Minister of Labour & National Service has announced that he has made an Order establishing a Wages Board in respect of workers employed either:—

(1) In unlicensed non-residential places of refreshment, central catering establishments or by catering contractors, or

(2) In staff canteens and hostels for the workers referred to in (1) above.

This Order is based on a recommendation received by the Minister from the Catering Wages Commission, and the Minister also has published a report submitted to him by the Commission with its recommendation. The report refers to a number of representations which were received by the Commission from certain trade organisations and which were considered by the Commission before making its final recommendation to the Minister.

For the purposes of the Order referred to an unlicensed place of refreshment is defined as a restaurant, dining room, cafe, tea shop or similar place, or a coffee stall, snack bar, buffet or bar at which intoxicating liquor cannot legally be sold, or can be sold only by reason of an occasional licence held by some person other than the employer. A central catering establishment is one which is wholly or mainly engaged in the preparation of food or drink for immediate consumption at two or more places of refreshment, but excludes an establishment wholly or mainly engaged on the preparation of food or drink for consumption on the premises where the food or drink is prepared.

The workers concerned are those engaged in the preparation or service of food or drink, or in the provision of living accommodation for such workers; or work incidental to these activities; workers employed in connection with the establishments referred to on ancillary activities such as transport, office, garage, stable and stores, and workers engaged on the retail sale of goods on premises where the main activity is the supply of food or drink for immediate consumption.

The exclusions from the scope of the wages board relate to residential catering establishments such as hotels, boarding-houses, hostels, holiday camps; hospitals; orphanages; universities and schools; catering carried on by railway companies; theatres and music halls where carried on by the management; undertakings carried on directly by the Crown or local authorities; and industrial or staff canteens covered by the Wages Board (Industrial & Staff Canteen Undertakings) Order, 1944.

A "residential establishment" is defined as an establishment which contains either four or more bedrooms, or, if it contains less than four bedrooms, contains sleeping accommodation for not less than eight persons.

Rates of Pay of Horse Carters

The decision of the Chairman of the Railway Staff National Tribunal recently has been published on a claim by the National Union of Railwaymen that the standard rate of pay of carters in all areas should be 60s. a week. The claim was presented to the Chairman, assisted by Mr. O. W. Cromwell, nominated by the railway companies, and by Mr. F. J. Burrows, nominated by the National Union of Railwaymen, as assessors, at a hearing on December 11, 1944, at which Mr. J. Benstead represented the National Union of Railwaymen and Mr. H. J. Combe represented the railway companies.

It was contended by the trade unions that horse carters in the employment of the companies should be brought into line with other road transport employees so far as rates of pay are concerned; that a substantial increase in the present rates is justified as a recompense for the work these employees undertake and because of the changes in working conditions since the rates were fixed by the agreement of 1920; that the mechanisation of road transport, the traffic regulations arising therefrom, and the traffic conditions created on the road have increased the responsibilities and the difficulties of horse carters; that the success of the "green arrow" service introduced by the companies a few years ago is largely in the hands of the carters; that an added responsibility of carters is the collection of outstanding individual accounts up to £2 in value; that the passengers' luggage-in-advance system and the introduction of cash-on-delivery traffic have increased the work and responsibility of carters; that canvassing by carters secures traffic and revenue and is a phase of their work worthy of recognition; and that in general there is no section of railway work where greater changes have taken place since 1920 than in that of carters.

It was contended by the railway companies that as horse carters are one of a large number of railway grades whose work is related, their rates of pay should be considered in relation to such other grades; that the rates paid to railway carters compare favourably with the rates paid in outside industry; that although changes have taken place in the duties required of railway carters incidental to the development of facilities offered by the companies in the transport of goods, such changes have not affected the responsibilities of carters to the extent of justifying an altered relation of their pay to that of other grades; that the "green arrow" service was the concern of station handling and clerical staff as well as carters and consignments by this service formed a very small proportion of total consignments; that the collection of charges by carters has tended to diminish; that the majority of carters are not concerned with passengers' luggage-in-advance; that the extent to which the cash-on-delivery system operated in relation to the total number of consignments dealt with was very small; and that, in general, no case has been made out for any increase in the standard rates of pay of carters.

The Chairman finds against the claim.

Fluorescent Lighting in L.M.S.R. Drawing Office

Some time ago (before the operation of the Discharge Lamp Lighting Control Order, 1943) the London Midland & Scottish Railway decided to instal fluorescent lighting in one of its principal drawing offices, where designs and specifications are prepared for the construction and maintenance of rolling stock .The installation, a general view of which is shown in the accompanying illustration, comprises some 60 fluorescent tubes in high-efficiency reflectors providing illumination of 25 foot-candles on the drawing boards. It replaced a number of 200-watt tungsten lamps in enclosing glass fittings from which the illumination was approximately 5 foot-candles. The use of the fluorescent tubes has reduced the former current consumption by more than 50 per cent.

The fittings permit a percentage of the light, which otherwise would be wasted, to be directed upwards through longitudinal apertures in the tops of the reflectors; this gives sufficient illumination in the upper section of the room to obviate the depressing "tunnel" effect often noticeable when a number of closed-top reflectors is installed in a room with a high ceiling. An almost complete absence of shadow is obtained by the use of the fluorescent lighting, which has daylight qualities.

The layout includes a reflector and tube over each drawing table; but, in view of possible variations in the spacing of tables, it was necessary to devise a method of suspension for the equipment which readily would permit alteration; this was achieved by means of steel tubes running the whole length of the office, supported by, and clipped to, the roof trusses.

The design of the installation was the result of collaboration between the engineers of the L.M.S.R. and of the Edison Swan Electric Co. Ltd.; the fluorescent tubes and reflectors were manufactured by the latter company.

Notes and News

Railway Sleeper Exports.—The exports of wooden railway sleepers from the Dominican Republic during the first six months of 1944 totalled 627,110.

Beyer, Peacock & Co. Ltd.—Warrants for dividends on the 5½ per cent. cumulative preference shares for the half years ended December 31, 1939, and June 30, 1940, are to be posted on January 20.

Cost-of-Living Index.—The official cost-of-living index figure at December 1 last was 101 points above the level of July, 1914 (the same as at November 1 last). In December, 1938, it was 56 points, and in December, 1939, 73 points above July, 1914.

Communications between Bombay and Karachi.—It is reported that post-war plans for Indian railways include a proposal for the improvement of communications between Bombay and Karachi by the construction of a line to run from Viramgam along the Gulf of Cutch.

Pedestrian Regimentation in Toronto.—Under the Toronto traffic bye-laws, which have now come into operation, pedestrians are required to raise their arms when they are about to turn; they must keep on the right side of the pavement; and they are forbidden to run for a tramcar.

U.S.A. Sells 6,239 Aircraft.—The U.S. Surplus War Property Administrator announced on December 14 that 6,239 surplus aircraft had been sold and paid for at December 1, 1944, and that a total of 23,391 planes had been declared surplus by the Army, Navy, and other Government agencies. All had been sold by the U.S. Reconstruction Finance Corporation, which is the disposal agency for surplus aircraft in the United States.

Road Accidents in November, 1944.—The return issued by the Ministry of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of November last shows 507 deaths (compared with 539 in November, 1943), 2,747 seriously injured (compared with 2,814 in November, 1943), and 7,521 slightly injured (compared with 7,730 in November, 1943).

Dispute in Bus Industry.—After discussions with the employers' and trade union representatives concerned, the Minister of Labour & National Service has appointed Sir John Forster "to inquire into and report on questions that have arisen between certain trade unions and certain company omnibus undertakings, members of the National Council for the Omnibus Industry, as to terms and conditions of employment of workers in those undertakings."

Red Cross Exhibition Coach to Travel 4,000 Miles.—The Red Cross exhibition coach lent by the main-line railways, to which brief reference was made in our issue of December 15 last, will travel 4,000 miles to stimulate interest in the "Penny-a-Week Fund" among railway staffs and the public (railwaymen, with a total contribution of over £400,000, are already the highest industrial group contributors to the fund in the country). The coach, a "blitzed" L.M.S.R. dining car which has been repaired and equipped with eight display cases and pictures of activities of the Red Cross & St. John, will visit, among other places, London, Sheffield, Newcastle, Cardiff, Swindon, Southampton, Brighton, Birmingham and Leeds. Miss Greta Richards, the Railway Queen for 1945, will be present at the opening of the coach at many of the centres, and local railway staffs will co-operate.

Swedish High-Speed Electric Locomotives.—At a general meeting of the Institution of Locomotive Engineers to be held on January 25, Mr. H. G. McClean will read a paper on "The Mechanical Design of the latest Class 'F' High-Speed Electric Locomotives of the Swedish State Railways." The meeting will be held in the hall of the Institution of Mechanical Engineers at 5.30 p.m.

Buenos Ayres Great Southern Railway Co. Ltd.—The Buenos Ayres Great Southern Railway Co. Ltd. is leaving Hardwick House, Whitchurch, Reading, and on and after January 15 its address will be River Plate House, Finsbury Circus, London, E.C.2. The Buenos Ayres Western Railway Limited, Bahia Blanca & North Western Railway Co. Ltd., Buenos Ayres Midland Railway Co. Ltd., Buenos Ayres Southern Dock Co. Ltd., and Bahia Blanca Waterworks Co. Ltd., which were also at Hardwick House, are likewise returning to River Plate House on January 15.

Heavy Traffics in Salvador.—The movement of goods by rail in Salvador continued to average approximately 50 per cent. above normal during the first half of 1944, partly as a result of the curtailment of the motor lorry traffic. Passenger traffic was the greatest in the history of the Republic, totalling close on 70 per cent. more movement in 6 months than during an entire pre-war year. Approximately 1,500,000 persons were carried, compared with some 900,000 in a normal 12-month period. Goods-tonnage figures show a similar increase. A normal year is about 350,000 tons, but approximately 300,000 tons were moved during the first half of 1944.

Iraq Railway Construction Programme.—The Parliament of Iraq has approved of a three-year works programme for the Iraq State Railways, requiring an expenditure of 4,250,000 dinars. The scheme comprises the construction of three important railway bridges and the extension of the railway from Kirkuk to Erbil. The latter project may be completed within 2½ years and the cost has been estimated at about 850,000 dinars. The three bridges are to be: across the River Tigris, to replace the existing railway ferry north of Baghdad; across the Lesser Zab River; and across the Euphrates to Musaiyib; the cost of the three has been estimated at 1,450,000 dinars. The 1944-45 budget of Iraq provides 550,000 dinars for highway construction.

U.S.A.-Denmark-Sweden Air Agreements.—The U.S. State Department announced on December 16 that agreements providing for commercial air transport services between the U.S.A. and Denmark and Sweden had been concluded by an exchange of notes. The agreement with Sweden refers to an arrangement signed on September 8 and 9, 1933, in which the two countries consented to operations for air transport over both countries. To that arrangement the new agreement adds ten articles on air worthiness of planes, use of air force, fuel, and other technical matters. An annexe to the agreement states that U.S. airlines obtain rights of transit and non-traffic stops in Swedish territory, as well as the right to pick and discharge international traffic in passengers, cargo, and mail at Stockholm, on the following route: New York or Chicago to Stockholm. The agreement with Denmark is similar to that with Sweden, and grants rights to U.S. airlines in Denmark and Greenland.

New Colour for C.N.R. Brake Vans.—Bright orange is replacing red as the colour for "cabooses" (goods brake vans) of the Canadian National Railways. The reason for changing from the traditional colour is stated to be to give greater visibility. The finish is glossy, and preliminary reports indicate that the new colour will wear better than the old. The

British and Irish Railway Stocks and Shares

Stocks	Highest 1944	Lowest 1944	Prices Jan. 9, 1945	Prices Rise/Fall
G.W.R.				
Cons. Ord.	62¾	55	59¾	— ¼
5% Con. Pref.	122¼	114¾	119½	— ½
5% Red. Pref. (1950)	110¼	104	105	—
5% Rt. Charge	135½	128	133½	—
5% Cons. Guar.	134 7/16	125	133½	+ 1
4% Deb.	118½	112¾	116	+ ½
4½% Deb.	118 1/16	114	116½	—
4½% Deb.	124½	119½	122½	—
5% Deb.	137	129½	134½	—
2½% Deb.	77	73⅛	73½	—
L.M.S.R.				
Ord.	34⅜	27⅞	32½	— ⅛
4% Pref. (1923)	64½	55¾	63½	— —
4% Pref.	81	72½	79½	+ ½
5% Red. Pref. (1955)	105⅞	102	103	— —
4% Guar.	107¼	99⅛	105	— ½
4% Deb.	111¼	104	107½	— ½
5% Red. Deb. (1952)	111	108	108½	—
L.N.E.R.				
5% Pref. Ord.	10½	7 7/16	8⅛	— 3/16
Def. Ord.	5 7/16	3⅜	4	— —
4% First Pref.	63⅜	55¾	61	— —
4% Second Pref.	35⅜	28½	32½	— —
5% Red. Pref. (1955)	102¼	97⅜	101½	— —
4% First Guar.	105½	96⅜	103½	* —
4% Second Guar.	95½	88½	93½	— —
3% Deb.	88½	80⅜	85½	— —
4% Deb.	110½	103½	107	— —
5% Red. Deb. (1947)	105⅜	101½	102½	— —
4½% Sinking Fund Red. Deb.	107	104¼	104½	—
SOUTHERN				
Pref. Ord.	80½	71⅞	78½	+ ⅛
Def. Ord.	26⅜	23	26⅛	— 3/16
5% Pref.	122	113½	118½	— ½
5% Red. Pref. (1964)	117½	112½	115½	— —
5% Guar. Pref.	134	125½	132½	— —
5% Red. Guar. Pref. (1957)	115½	112½	114½	— —
4% Deb.	118	110	115	— —
5% Deb.	135½	127	133	+ 1
4% Red. Deb. (1962-67)	111½	107½	108½	—
4% Red. Deb. (1970-80)	112	108¼	109½	—
FORTH BRIDGE				
4% Deb.	107	103	105	—
4% Guar.	106½	102	105	—
L.P.T.B.				
4½% "A"	125	119	121½	—
5% "A"	133½	128	131½	—
3% Guar. (1967-72)	99½	98	99	—
5% "B"	124½	118 7/16	122½	+ ½
"C"	72⅝	64½	69½	—
MERSEY				
Ord.	35⅜	33	35	—
3% Perp. Pref.	72	66	70	—
4% Perp. Deb.	105	103	107	—
3% Perp. Deb.	85½	79½	84	—
IRELAND*				
BELFAST & C.D. Ord.	9	6	8	—
G. NORTHERN				
Ord.	33⅞	19	32 15/16	—
Pref.	49	37	48⅜	—
Guar.	70	57 7/16	69½	—
Deb.	90½	81½	89	—
G. SOUTHERN				
Ord.	69⅞	35	—	—
Pref.	69½	33	—	—
Guar.	80	55	—	—
Deb.	99½	83	—	—
IRISH TRANSPORT				
Common	—	—	65½	—
3% Deb.	—	—	98½	—

*Latest available quotation

OFFICIAL NOTICES

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

THE Board of Directors of an important Firm of Engineers in the North of England are considering the appointment of a Mechanical Engineer, aged between 35 and 45, with high qualifications and considerable experience to fill a senior post on their General Management Staff, which would carry progressive responsibility.

Applicants should possess a good general education, followed by technical education leading to a Degree or equivalent qualification; considerable workshop experience and knowledge of production methods; experience of Locomotive Manufacture and Design, with the addition of running experience; knowledge of Diesel Traction and some commercial experience an advantage.

Applicants should state their age, give details of their career, and state the salary they would expect to receive.—Address, Box 121, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

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This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented

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lettering and maple-leaf monogram are in white. Underframes and roofs are still of standard box-wagon red.

Nigerian Railway Earnings.—During the period October 7 to 28, 1944, Nigerian Railway traffic returns totalled £238,604. This compares with £268,610 in the corresponding period of 1943, a decrease of £30,006.

Charles Roberts & Co. Ltd.—Interim dividend on the ordinary capital for the year to March 31, 1945, is again 5 per cent., less tax. For 1943-44 the final dividend was 10 per cent., making 15 per cent. for the sixth successive year.

Mechanical Engineer Required.—An important firm of engineers in the North of England is considering the appointment of a mechanical engineer, between 35 and 45 years of age, with high qualifications and considerable experience. For full particulars, see our Official Notices above.

Permanent Way Institution.—The first meeting of the 1945 syllabus will be held at Co-operative Buildings, Lancaster, on January 13, at 3 p.m. During the afternoon, Mr. A. W. Robertson, B.Sc., A.M.Inst.C.E., will give a lecture entitled "Some Features of the Lancaster to Carlisle Railway."

Argentine Trade Balance.—In the period January to October last the favourable trade balance of Argentina rose from 977,625,834 pesos to 1,149,562,614 pesos. The corresponding figure for 1942 was 392,024,847 pesos. The volume of imports increased in 1944 by 8·5 per cent., and the market value by 6·9 per cent. The tonnage of exports rose by 21·7 per cent., and the market value by 12·9 per cent. The United Kingdom continues to be Argentina's best customer, although she occupied only fourth place in the list of suppliers, in which the lead was taken by Brazil, with the U.S.A. second, and India third. Exports to the United Kingdom in the first ten months of 1944 were valued at 750,793,897 pesos. The U.S.A. came next with 451,936,624 pesos.

G.W.R. "Helping Hand" Fund.—The "Helping Hand" Fund of the Great Western, supported by voluntary contributions, takes care of families of employees who may be overtaken by illness or other misfortune. It makes financial grants where necessary, and provides parcels of clothing and footwear at all times. The Women's Organisation President, Mrs. C. R. Dashwood, wife of the company's Chief Accountant) packs, and supervises the distribution of, parcels. At Christmas time special efforts are made to provide the children of the particular homes with parcels of toys. Present-day difficulties have been overcome by the ingenuity of the members, who have produced excellent dolls, wooden and metal trains, engines, ships, elephants, woolly animals, horses and carts, indoor games, modelling wax, books, and much else, including tiny sewing machines which really sew and will make dolls' clothes.

Institution of Electrical Engineers.—An additional ordinary meeting of the Institution will be held in the Lecture Theatre on January 18, at 5.30 p.m., when the second report on education and training for engineers, prepared by the Education & Training and Personnel Sub-Committee of the Post-War Planning Committee of the Institution will be presented and discussed.

P.W.I. Examinations.—The Council of the Permanent Way Institution has decided to re-commence its Permanent Way examinations, and they will be held towards the end of May next. Members wishing to sit for either the "A" or "B" examination should apply to the Secretary (Mr. H. Janes, 19, Weald View Road, Tonbridge, Kent) not later than March 31, sending the appropriate entrance fee of 2s. 6d. for "A" or 5s. for "B" examination.

Hukuang Railways Loan, 1911.—The Hongkong & Shanghai Banking Corporation states that bonds for £277,360 of the Chinese Government 5 per cent. Hukuang Railways sinking fund gold loan, 1911, have been drawn and are due for redemption at par on June 15 next. The redemption will be subject to the provisions of the Chinese Government's offer of April 5, 1937, under which interest is to be paid out of net earnings of the railway and guaranteed out of salt revenue. Payment of amortisation and of scrip in respect of interest arrears is to be made out of net earnings, and any deficiency made good by the Ministry of Finance.

Cordoba Central Trust Limited.—The ordinary general meeting of the Cordoba Central Trust Limited was held in London recently. Mr. W. M. Codrington, M.C., the Chairman, in the course of his statement circulated with the report, said that the requisite three months' notice had been given on November 1, 1944, to redeem the whole of the Argentine Republic State Railway bonds. An embargo had been placed on bonds to the value of £147,500, in connection with a claim brought against the company in the courts for the payment of a sum alleged to be payable to the Argentine Government Pensions Fund. These bonds had not been redeemed. The lawsuit raised important matters to all privately-owned railways in the Argentine, and in contesting it the company was acting in consultation with its legal advisers. For this and other claims and lawsuits in the Argentine there was in the balance sheet a contingent reserve of £203,944, which it was hoped would prove more than adequate.

Contracts and Tenders

The Canadian National Railways have delivered from the Transcona Shops, and placed in service, 23 overhead-iced refrigerator vans out of an order for 200. These units are of 50 tons capacity each and are of all-steel construction. With the completion of the present order, the C.N.R. will have 502 overhead-iced refrigerator vans.

Below is a list of orders placed recently by the Egyptian State Railways:—

A. Balfour & Co. Ltd.: Hand tools, steel twists, drills, taps and files.
Hardypick Limited: Hand tools.
W. G. Birkinshaw & Co. Ltd.: Hand tools.
Thomas Turton & Sons Limited: Hand tools.
C. & G. Hampton Limited: Hand tools.
Marconi's Wireless Telegraph Co. Ltd.: Wireless material.
Incandescent Heat Co. Ltd.: Charts.
George Angus & Co. Ltd.: Leather belting.
British Metallic Packings Co. (1933) Ltd.: Metallic packing rings.
Evershed & Vignole Limited: Ink for recording voltmeters.
Hayward (Addressing Machines) Co. Ltd.: Addressing machine ink.
Chloride Electrical Storage Co. Ltd.: Exide type hydrometer sets.
Ibbotson Bros. & Co. Ltd.: Springs.
Frank Wigglesworth & Co. Ltd.: Texropes.
J. Stone & Co. Ltd.: Spares for dynamo and accumulators.
A. Herbert Limited: Dieheads.
Imperial Chemical Industries Limited: Wire, etc.

Forthcoming Meetings

January 16 (*Tue.*).—The Institution of Civil Engineers, Great George Street, Westminster, S.W.1. 5.30 p.m. Paper: "Railway signalling for the civil engineer," by F. H. D. Page, O.B.E., M.Inst.C.E.

January 17 (*Wed.*).—Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, 1.45 p.m. "Design in modern transport," by Mr. Christian Barman, F.R.I.B.A., N.R.D.

January 19 (*Fri.*).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W.1, 5.30 p.m. "The Engineer and the Nation's Money," by Mr. Antony R. Vickers, B.Sc. (Eng.), A.M.I.Mech.E.

January 19 (*Fri.*).—Junior Institution of Engineers, 39, Victoria Street, S.W.1, 6.30 p.m. Paper on "The Repair of Bridges Damaged by Enemy Action on the Southern Railway," by Mr. A. Dean, M.Sc., A.M.Inst.C.E.

January 20 (*Sat.*).—The Institute of Transport Metropolitan Graduate & Student Society, at the Institution of Electrical Engineers, Victoria Embankment, W.C.2, 2.15 p.m. "The trader and post-war transport," by Mr. R. G. Brewer.

Railway Stock Market

With attention centred on the war news, stock markets tended to be inactive, although the tone generally was firm. Sentiment was aided by the further gains recorded in British Funds and by the prevailing belief that the upward trend is likely to be continued because of the weight of money seeking investment. Leading industrials, including Imperial Chemical, Turner & Newall, Distillers, and so on, also moved higher, but home rails, although generally firm, have so far not attracted increased demand, despite the approaching dividends. Nevertheless, with yields generally tending to move lower under the lead of the rise in gilt-edged prices, the large return on home railway junior stocks have added attractions. Moreover, dividends at around 1943 rates can be considered as being virtually guaranteed by the Government until at least 1947. Had markets developed activity with the turn of the year, it is not unlikely home rail juniors would have shown favourable response; as there are, of course, large amounts of these stocks in issue, it usually takes a fair demand to cause much response in prices. The statements at the railway annual meetings will probably be awaited with even more than usual interest on this occasion, because a point may have been reached when the Chairman can dwell more fully on the outlook and the progressive plans for the future, evidence of which has been provided by the railways' important airlines proposals. Moreover, no doubt it will again be emphasised that the railways have not in any way given up their right to standard revenue as defined in the 1921 Act.

With gilt-edged maintaining an upward trend, the yields on home rail prior charges and also some of the senior preference stocks will doubtless have added attractions. Both Gt. Western and Southern 4 per cent. debentures return not far short of 3½ per cent., L.N.E.R. 3 per cent. debentures slightly over this rate, and L.M.S.R. 4 per cent. debentures not much below 3¾ per cent. Gt. Western 5 per cent. preference yields 4 3/16 per cent. and Southern 5 per cent. preference gives a slightly higher return.

Compared with a week ago, Gt. Western ordinary has been maintained at 59¾, the 5 per cent. preference at 119½, and the 4 per cent. debentures were 116. L.M.S.R. ordinary at 32½ was slightly lower on balance, but the 1923 preference improved fractionally to 63¾, as did the senior preference at 79. L.N.E.R. second preference at 32¾ was the same as a week ago; the first preference was better at 61, compared with 60¾, and the second guaranteed strengthened to 94. Among Southern issues, the deferred improved from 26⅜ to 26½ and the preferred from 78 to 78½; the 5 per cent. preference was maintained at 118½ and the 4 per cent. debentures at 115. Elsewhere, London Transport "C" eased to 69; the 4½ per cent. "A" at 121½ and the 5 per cent. "A" at 131¼ showed fractional gains.

Argentine rails have been inactive and where changed showed small declines; B.A. Gt. Southern were 12, compared with 12¼ a week ago, and the 4 per cent. debentures 61, compared with 61½. Argentine Gt. Western 5 per cent. debentures lost a point at 56, as did B.A. & Pacific 4½ per cent. debentures at 55, and B.A. Western 4 per cent. debentures were half-a-point down at 55½.

Elsewhere, San Paulo was a good feature, rising further from 55½ to 60 on current market hopes of the dividend outlook and the view that from the long-term angle the stock may prove a more promising way than Brazilian bonds of participating in the prosperity of Brazil. Antofagasta eased from 10 to 10½ and the preference from 38 to 37½. Leopoldina debentures have been maintained at 52, Nitrate Rails at 71s. 3d. and United of Havana debentures at 29. French rail sterling bonds weakened, Orleans from 81½ to 80 and Nord from 99½ to 98½. Canadian Pacifics have been more active, improving from 14⅞ to 15¼ on talk of the possibility of a further dividend payment for the year; the 4 per cent. preference stock also improved from 65½ to 67½.

UNITED RAILWAYS OF THE HAVANA & REGLA WAREHOUSES LIMITED.—Total railway receipts for the year to June 30 were £3,017,313, compared with £2,707,710, and receipts from warehouses and wharves £135,257, against £140,859. After deducting total railway expenses of £2,663,968, against £2,238,816, warehouse and wharves expenses, £96,550, against £113,765, there was a net revenue of £392,052, compared with £497,988. After crediting investment income and gain on remittances, and debiting a full year's interest on the debentures, and accrued interest on account of unpaid debenture interest, and providing for tax, there is a net debit of £910,217, increasing the debit carried forward to £14,062,204. The Chairman states that it appears possible to place a plan before the debenture holders at an early date.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1944	Prices: Lowest 1944	Prices: January 9, 1945	Prices: Yield % (See Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	31.12.44	£ 30,180	+ £ 3,610	52	£ 1,522,940	£ 1,539,311	+ £ 16,371	Ord. Stk.	13¼	9½	10	Nil
	Argentine North Eastern ...	753	30.12.44	17,253	+ 2,747	26	513,906	420,453	+ 93,453	,,	6½	4½	6	Nil
	Bolivar	174	Dec., 1944	5,945	+ 1,169	52	63,997	62,732	+ 1,265	6 p.c. Deb.	18½	7½	7½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	19 7/16	15	18	Nil
	Buenos Ayres & Pacific ...	2,773	30.12.44	146,000	+ 15,666	26	3,489,133	2,830,666	+ 658,467	Ord. Stk.	7 1/32	3½	5½	Nil
	Buenos Ayres Great Southern	5,080	30.12.44	245,000	+ 7,734	26	5,135,400	4,771,533	+ 363,867	Ord. Stk.	14½	9½	12	Nil
	Buenos Ayres Western ...	1,929	30.12.44	74,066	+ 19,933	26	1,930,600	1,537,266	+ 393,334	,,	13½	9½	11	Nil
	Central Argentine	3,700	30.12.44	207,626	+ 15,266	26	4,913,576	4,215,126	+ 698,450	,,	10½	6⅝	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4½	3	5	Nil
	Cent. Uruguay of M. Video	972	30.12.44	36,470	− 1,692	26	843,421	888,642	− 45,221	Ord. Stk.	5½	4	4½	Nil
	Costa Rica	262	Nov., 1944	13,310	− 6,583	21	111,223	114,386	− 3,163	Stk.	17½	14½	17	Nil
	Dorada	70	Oct., 1944	28,028	+ 6,228	43	265,443	218,607	+ 46,836	1 Mt. Deb.	101	101	98½	£6 1/10
	Entre Rios	808	30.12.44	23,326	+ 726	26	678,086	583,640	+ 94,446	Ord. Stk.	6½	4½	5	Nil
	Great Western of Brazil ...	1,030	30.12.44	32,900	+ 10,900	52	1,187,200	903,800	+ 283,400	Ord. Sh.	38/-	23/3	30/-	Nil
	International of Cl. Amer. ...	794	Nov., 1944	$546,534	− $18,900	47	$6,827,493	$6,589,280	+ $238,213	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1¾	¼	1	Nil
	La Guaira & Caracas... ...	22¾	Dec., 1944	6,522	− 463	52	90,117	97,885	− 7,768	5 p.c. Deb.	88	79	79½	£6 5/9
	Leopoldina	*1,918	30.12.44	51,427	+ 5,196	52	2,443,963	1,904,309	+ 539,654	Ord. Stk.	5⅞	4¼	4½	Nil
	Mexican	483	31.12.44	ps. 804,100	+ ps. 118,300	25	ps. 12,545,500	ps. 10,840 400	+ ps. 1,705,100	Ord. Stk.	¼	⅛	⅜	Nil
	Midland Uruguay	319	Nov., 1944	16,470	− 2,113	21	83,491	84,450	− 959	—	—	—	—	—
	Nitrate	382	31.12.44	8,356	+ 1,607	52	185,304	160,692	+ 24,612	Ord. Sh.	75/10	65/10	70/-	£3 11 5
	Paraguay Central	274	29.12.44	G$60,753	− G$4,663	26	G$1,578,832	G$1,421,637	+ G$157,195	Pr. Li. Stk.	79½	68	77	£7 16 3
	Peruvian Corporation ...	1,059	Dec., 1944	133,173	+ 17,641	26	769,298	637,187	+ 132,111	Pref.	9	10	8	Nil
	Salvador	100	Nov., 1944	c 87,000	− c 7,000	21	c 410,000	c 429,000	− c 19,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	57½	46	60	£3 6/7
	Taltal	156	Dec., 1944	2,390	− 5,335	26	15,165	35,225	− 20,060	Ord. Sh.	21/3	13/9	12/6	Nil
	United of Havana	1,301	Dec., 1944	57,965	+ 15,600	26	1,238,861	1,226,451	+ 12,410	Ord. Stk.	4	2½	3	Nil
	Uruguay Northern	73	Nov., 1944	1,608	+ 34	21	7,291	7,130	+ 161	—	—	—	—	—
Canada	Canadian Pacific	17,018	31.12.44	1,548,200	− 207,800	52	63,774,200	59,421,600	+ 4,352,600	Ord. Stk.	17¾	13 11/16	15½	6 7/16
India†	Barsi Light	202	Nov., 1944	20,632	− 2,190	35	185,632	173,287	+ 12,345	Ord. Stk.	129½	97¼	128½	£3 10
Various	Egyptian Delta	607	10.12.44	22,586	+ 2,612	35	481,700	396,384	+ 85,316	Prf. Sh.	7 11/32	5½	7	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	63½	58	60	Nil
	Midland of W. Australia ...	277	Nov., 1944	18,036	− 12,078	21	101,006	165,804	− 64,798	Inc. Deb.	101½	99½	98½	£4 1/3
	Nigerian	1,900	30.9.44	286,839	− 39,236	4	—	—	—	—	—	—	—	—
	South Africa	13,301	2.12.44	1,042,870	+ 106 952	35	31,745,139	29,237,519	+ 2,507,620	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	− 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 15 pesos to the £

† Receipts are calculated @ 1s. 6d. to the rupee